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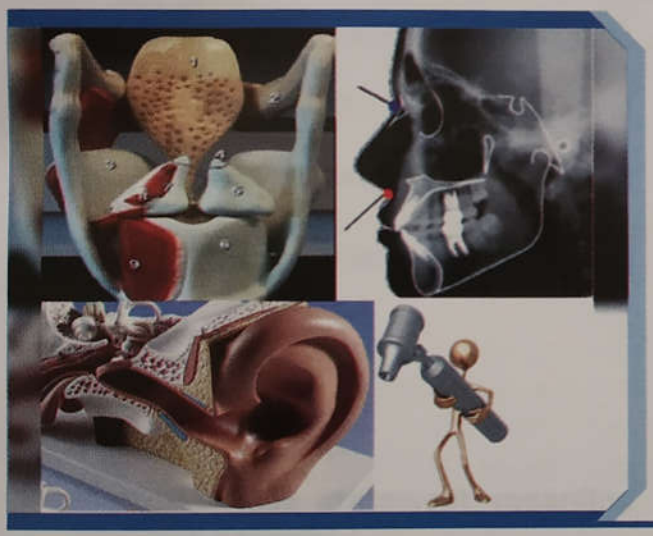


EAR, NOSE & THROAT

Rhinology – Questions

1. **Most developed paranasal sinus at birth is:**
   a. Frontal sinus b. Maxillary sinus
   c. Sphenoid sinus d. Ethmoid sinus

2. **Largest paranasal sinus is:**
   a. Frontal sinus
   b. Maxillary sinus
   c. Sphenoid sinus
   d. Ethmoid sinus

3. **Alveolar process of maxilla contains:**
   a. Second bicuspid and first and second molars
   b. Second bicuspid and second and third molars
   c. First bicuspid and first and second molars
   d. First bicuspid and second and third molars

4. **Most anterior cell of anterior ethmoid group is:**
   a. Agger Nasi Cells
   b. Onodi Cells
   c. Haller Cells
   d. Fovea Ethmoidalis

5. **Pick the false statement regarding olfactory pathway :**
   a. Only neurons in adult human that replace themselves
   b. Axones of olfactory nerves are unmyelinated C fibres
   c. Smallest and slowest fibres in nervous system
   d. Mitral cells are tertiary order neurons

6. **A 7 year old child while playing fell down. He has developed nasal blockage on both sides and there is swelling around the nose. What is the further treatment of this child?**
   a. Aspiration of septal swelling
   b. Anterior Nasal packing
   c. Start Intravenous steroids
   d. Start Topical Corticosteroid nasal spray

7. **All of the following lead to perforation of Cartilaginous part of nasal septum except**
   a. Tuberculosis b. Leprosy
   c. Lupus d. Syphilis

8. **Which of the following is not true about ethmoid air cells**
   a. Posterior ethmoid air cells are 1 to 8.
   b. Anterior and posterior ethmoid air cells are separated by basal lamella
   c. Bulla ethmoidalis is the anterior most anterior ethmoidal air cell
   d. Haller cells are anterior ethmoidal air cell lying close to orbital floor

9. **The radiological presence of which paranasal sinus appears last in human life**
   a. Maxillary sinus
   b. Ethmoid sinus
   c. Sphenoid sinus
   d. Frontal sinus

10. **1st radiological evidence of sphenoid sinus is by:**
    a. 4-5mth b. 1 yr
    c. 6 yrs d. 4 yrs

11. **Type of sphenoid sinus in adult population is usually:**
    a. Sellar
    b. Post seller
    c. Pre seller
    d. Maximal Pneumatization

12. **Most common organism associated with acute sinusitis is:**
    a. Rhinovirus
    b. S. pneumoniae
    c. S. aureus
    d. Aspergillosis

1. d	2. b	3. c	4. d	5. d	6. a	7. d	8. c	9. d	10. d
11. a	12. a								

13. Chronic sinusitis is defined as when the signs and symptoms last for more than

a. 3 weeks
b. 4 weeks
c. 6 weeks
d. 12 weeks

14. Pediatric Sinusitis usually involves:

a. Maxillary sinus and anterior ethmoids
b. Maxillary sinus and posterior ethmoids
c. Frontal sinus and anterior ethmoids
d. Frontal sinus and posterior ethmoids

15. 24 years old ramesh presents with pain over the bridge of the nose. It was aggravated by movements of eyeballs. Examination revealed oedema of both eyelids and swelling of the middle turbinate. Involvement of which of the following para-nasal sinus is suspected.

a. Maxillary Sinus
b. Ethmoid Sinus
c. Frontal sinus
d. Sphenoid sinus

16. Chronic sinusitis in children is usually confined to:

a. Ethmoid sinus
b. Maxillary sinus
c. Frontal sinus
d. Sphenoid sinus

17. Most common presentation of chronic sinusitis is:

a. Nasal obstruction or blockage
b. Purulent nasal discharge
c. Hyposmia or anosmia
d. Headache

18. Investigation of choice for Acute sinusitis is

a. (CT) Scan
b. X-ray(Water'View)
c. MRI
d. Ultrasonography

19. Investigation of choice for chronic invasive fungal sinusitis is

a. (CT) Scan
b. X-ray(Water'View)
c. MRI
d. Ultrasonography

20. Patients suffering from cystic fibrosis and sinusitis have higher risk for developing:

a. Pseudomonal infections
b. Methicillin resistant S.aureus infections
c. Both
d. None

21. Rhinocerebellar disease is caused by:

a. Pseudomonas
b. Methicillin resistant S.aureus
c. Mucor
d. None

22. Sinus most commonly involved in mucoceles is:

a. Frontal sinus
b. Maxillary sinus
c. Sphenoid sinus
d. Ethmoid sinus

23. All are true regarding mucocele of frontal sinus except?

a. Displaces the eyeball downward and laterally
b. Cystic tender swelling
c. Egg shell crackling can be elicited
d. Treatment is frontoethmoidectomy

24. Traid of "Kartagener's Syndrome" includes all except:

a. Chronic rhinitis/sinusitis/otitis media
b. Bronchiectasis
c. Situs inversus
d. Azoospermia

25. Rhinitis sicca is most commonly seen

a. Anterior nares
b. Posterior nares
c. Supreme meatus
d. Superior meatus

26. All of the following are causes of Rhinolalia Clauses except-

a. Nasopharyngeal carcinoma
b. Hypertrophied adenoids
c. Allergic Rhinitis
d. Velopharyngeal insufficiency

13. d	14. a	15. b	16. a	17. a	18. a	19. c	20. c	21. c	22. a
23. b	24. d	25. a	26. d						

27. Hypernasality with stridor is seen in
a. Unilateral abductor palsy
b. Bilateral abductor palsy
c. Laryngomalacia
d. None

28. A young female with a long standing history of sinusitis presents with frequent fever along with personality changes and headaches of recent onset. Fundus examination revealed papilledema. The most likely diagnosis is:
a. Frontal lobe abscess
b. Meningitis
c. Encephalitis
d. Frontal bone osteomyelitis

29. Fractures of Zygoma shows all the features except:
a. Diplopia
b. CSF rhinorrhea
c. Epistaxis
d. Trismus

30. 85 yrs old ramu presented with nasal bleed;on examination person was too anaemic. Bleeding didn't responded to anterior nasal packing. Most common site of bleed in such clinical situation would be?
a. Little's area
b. Retro-columellar region
c. Woodruff's plexus
d. Both little's area and retro-columellar region

31. A 2-year-old child is brought to the hospital with a compressible swelling root of nose; most likely diagnosis is:
a. A-V malformation
b. Lacrimal sac cyst
c. Ethmoid sinus cyst
d. Meningoencephalocele

32. Orbital Apex Syndrome is similar to Superior Orbital Fissure Syndrome with added involvement of:
a. CN II
b. CN III
c. CN IV
d. CN VI

33. Sinocutaneous Fistula: usually begins as a:
a. Ethmoidal osteomyelitis
b. Maxillary osteomyelitis
c. Frontal osteomyelitis
d. Sphenoidal osteomyelitis

34. Earliest stage of orbital complication is:
a. Orbital Cellulitis
b. Subperiosteal Abscess
c. Preseptal Cellulitis
d. Orbital Abscess

35. Most common complication of endoscopic sinus surgery:
a. Synechia
b. Retrobulbar Hematoma
c. Diplopia
d. Seromas

36. Retrobulbar Hematoma as a complication of FESS occur from retration injury of the:
a. Anterior ethmoid artery
b. Posterior ethmoid artery
c. Sphenopalantine artery
d. Lingual artery

37. Most common site of Keratotic Papilloma is:
a. Litter's area
b. Inferior turbinate
c. Nasal vestibule
d. Middle meatus

38. Symptom not favouring the diagnosis of inverted papilloma:
a. Unilateral obstruction
b. Rhinorrhea
c. Diplopia
d. Translucent blood less mass

39. Most common site of 'squamous cell carcinoma' nasal cavity is:
a. Litter's area
b. Inferior turbinate
c. Lateral wall
d. Middle meatus

40. Uppermost extent of the nose as determined by direct visual inspection:
a. Glabella
b. Radix.
c. Nasion
d. Rhinion

27. b	28. a	29. b	30. c	31. d	32. a	33. c	34. c	35. a	36. a
37. c	38. d	39. c	40. b						

41. The internal nasal valve (limen nasi) is bordered by of the following structures except the:

a. Nasal septum
b. Inferior turbinate
c. Middle turbinate
d. Upper lateral cartilage

42. pH of nasal secretion is:

a. 5 b. 7
c. 8 d. 9

43. Trauma to which bony structure causes the highest risk of cerebrospinal fluid leakage?

a. Vomer
b. Perpendicular plate of the ethmoid
c. Perpendicular plate of the palatine bone
d. Premaxilla

44. DQB Sphenoidal sinus opens into:

a. Inferior meatus
b. Middle meatus
c. Superior meatus
d. Sphenoethmoidal recess

45. AMR FOUNDATION 15Comek 14 Sws12 Nasolacrimal duct opens into:

a. Superior meatus
b. Middle meatus
c. Inferior meatus
d. Sphenopalatine recess

46. Which of the following bones do not contribute the nasal septum :

a. Sphenoid b. Lacrimal
c. Palatine d. Ethmoid

47. Frontal sinuses appear radiologically at the age of?

a. 2 b. 4
c. 6 d. 12

48. Ciliary movement rate of nasal mucosa is

a. 1-2 mm/min b. 2-5 mm/min
c. 5-10 mm/min d. 10-12 mm/min

49. Ideal treatment of rhinosporidiosis is:

a. Rifampicin
b. Excision with cautery at base
c. Dapasone
d. Laser

50. Russell body is fond in:

a. Rhinospordisosis
b. Rhinoscleroma
c. Muromycosis
d. All

51. Regarding antrochonal polyp which one is true:

a. Origin from maxillary sinus and goes to nasopharnx
b. Present with severe bleeding
c. Bilateral
d. Seen in elderly person

52. Which of the following best differentiates antrochoanal polyp from ethmoidal polyp?

a. They are multiple
b. Best seen on posterior rhinoscopy
c. They are bilateral
d. Recurrence on polypectomy

53. The commonest cause of unilateral mucopurulent rhinorrhoea in a child is:

a. Foreign body
b. Adenoids which are blocking the airways
c. Deviated nasal septum
d. Inadequately treated acute frontal sinusitis

54. All are true about ozaena except

a. Common in female
b. It is usually unilateral
c. Nasal cavity is filled with greenish crusts
d. Atrophic pharyngitis

55. MC cause of epistaxis in 3 years old child:

a. Nasal polyp
b. Foreign body
c. Upper respiratory catarrh
d. Trauma

41. c	42. b	43. b	44. d	45. c	46. b	47. c	48. c	49. b	50. b
51. a	52. b	53. a	54. b	55. d					

56. Symptoms of sinusitis are all except
a. Blood stained rhinorrhea
b. Facial edema
c. Nasal blockage
d. Diplopia

57. Sphenoid sinusitis pain is referred most commonly to
a. Occiput
b. Vertex
c. Frontal
d. Temporal region

58. CSF Rhinorrhea occurs due to fracture of:
a. Roof of orbit
b. Cribriform plate of ethmoidal bone
c. Frontal sinus
d. Sphenoid bone

59. The pathognomonic test for CSF in suspected CSF rhinorrhea is
a. Glucose concentration
b. Handkerchief test
c. Halo sign
d. Beta-2 transferrin

60. Inverted papilloma is characterized by all except:
a. Also called as schneiderian papilloma
b. Seen more often in females
c. Presents with epistaxis and nasal obstruction
d. Originates from lateral wall of nose

61. About nasal syphilis which of the following is untrue :
a. Perforation occurs in septum
b. Saddle nose deformity may occur
c. In new born, it presents as snuffles
d. Secondary syphilis is the common association

62. Asymmetrical Congestive Response (The Nasal Cycle) occurs every:
a. 1-2 hours
b. 2–7 hours
c. 1-2 mins
d. 2–7 mins

63. Most common cause of saddle nose is:
a. Iatrogenic
b. Trauma
c. T.B
d. Leprosy

64. Saddle nose involving both cartilage and bone is best corrected by:
a. Silicon
b. Teflon
c. Iliac crest
d. 11th rib

65. If midline of dorsum from frontonasal angle to the tip is curved: it results in
a. Saddle nose
b. Hump nose
c. Crooked nose
d. Deviated nose

66. Study the figure and diagnosis?

a. Rhinophyma.
b. Rhinolith
c. Keratotic Papilloma
d. Inverted Papilloma

67. Unilateral pain,purulent rhinorrhea and epistaxis are diagnositic of?
a. Rhinophyma.
b. Rhinolith
c. Keratotic Papilloma
d. Inverted Papilloma

68. Most common malignant tumour invading skin of nose is?
a. Rhinophyma
b. Rodent ulcer
c. SCC
d. Melanoma

69. A wide roomy nasal cavity with thick crust formation and disfigured hard external nose is seen in
a. Atrophic Rhinitis
b. Rhinosporidiosis
c. Rhinoscleroma
d. Rhinitis sicca

56. d	57. a	58. b	59. d	60. b	61. d	62. b	63. b	64. c	65. c
66. a	67. b	68. b	69. c						

70. All of the following are part of Laryngopharynx except

a. Post Cricoid area
b. Pyriform sinus
c. Vallecula
d. Posterior Pharyngeal wall

71. All of the following are true about nose and sinus malignancy except

a. Malignancy of infrastructure of maxillary sinus has poor prognosis
b. Woodworker carcinoma is adenocarcinoma of ethmoid
c. Ringertz tumour of nose is a premalignant condition
d. Esthesioneuroblastoma is a malignant tumour which originates from the olfactory neuroepithelium of nose.

72. According to Lederman's classification which of the followingis not included in suprastructure:

a. Ethmoid sinus
b. Frontal sinus
c. Olfactory area of nose
d. Respiratory area of nose

73. Most common cause of septal perforation is?

a. Tertiary syphilis
b. Septoplasties
c. Cocaine abusers
d. Granulomatous or vascular diseases

74. Crooked nose involves

a. Septum
b. Dorsum
c. Both septum and dorsum
d. None

75. " Jarjaway" fracture of nasal septum from blow from the ?

a. Front. b. Below
c. Medial side d. Lateral side

76. "Chevallet" fracture of nasal septum from blow from the?

a. Front b. Below
c. Medial side d. Lateral side

77. Cottle test is done to rule out obstruction at the level of?

a. Choanal b. Nasal valve
c. Attic d. Turbinate

78. 24 years old ramesh presents with pain over the bridge of the nose. It was aggravated by movements of eyeballs. Examination revealed oedema of both eyelids and swelling of the middle turbinate. Involvement of which of the following para-nasal sinus is suspected.

a. Maxillary Sinus
b. Ethmoid Sinus
c. Frontal sinus
d. Sphenoid sinus

79. Pain in vertex is seen in:

a. Ethmoid sinusitis
b. Sphenoid sinusitis
c. Frontal sinusitis
d. Maxillary sinusitis

80. Incidence of mucocele is lowest in

a. Frontal sinus
b. Sphenoid sinus
c. Maxillary sinus
d. Ethmoid sinus

81. Coincidental malignancy in upper respiratory tract with inverted papilloma is:

a. 2% b. 5%
c. 4% d. 0.1%

82. Normal nasofrontal angle is:

a. 105 b. 134
c. 190 d. 125

83. Reduction rhinoplasty is for:

a. Hump nose b. Narrow nose
c. Crooked nose d. Saddle nose

84. Rhinitis associated with exanthemas are all except?

a. Measles b. Rubella
c. Chickenpox d. Coryza

85. McGovern's technique is used for management of:

a. Foreign body nose
b. Atrophic rhinitis
c. Hypertrophic rhinitis
d. Choanal atresia

70. c	71. a	72. d	73. b	74. c	75. a	76. b	77. b	78. b	79. b
80. b	81. c	82. b	83. a	84. d	85. d				

86. Treatment of choice of vasomotor rhinitis

a. Vidian neurectomy
b. Steroids
c. Antibiotics
d. Anti allergic

87. Sluder's neuralgia originates through:

a. Anterior ethmoid nerve
b. Posterior ethmoid nerve
c. Sphenopalatine nerve
d. Trigeminal nerve

88. 20 yrs old male presented with thick sticky nasal discharge and nasal obstruction since last 6 mths. On examination hypertrophy of nasal mucosa seen, which turbinate seem to be involved ?

a. Superior b. Middle
c. Inferior d. None

89. 20 yrs old female presented with nasal obstruction and epistaxis. On examination nasal cavity was full of foul smelling crusts. Diagnosis?

a. Hypertrophic rhinitis
b. Atrophic rhinitis
c. Rhinitis Sicca
d. Rhinitis caseosa

90. Bloated plasma cells with bifringent inclusions are feature of?

a. Hypertrophic rhinitis
b. Rhinosporidiosis
c. Rhinoscleroma
d. Rhinitis caseosa

91. Upper respiratory gummas can lead to perforation of the nasal septum or palate?

a. Primary syphilis
b. Secondary Syphilis
c. Late Syphilis
d. None

92. The earliest sign of congenital syphilis usually rhinitis, or "snuffles" appear after?

a. 2-6 days b. 2-6 wks
c. 7 days d. 7 wks

93. Most common site of tuberculosis in nasal cavity is?

a. Anterior end of inferior turbinate
b. Posterior end of inferior turbinate
c. Anterior end of middle turbinate
d. Posterior end of middle turbinate

94. Friable, "strawberry" red (vascular) polypoid nasal lesion are feature of?

a. Hypertrophic rhinitis
b. Rhinosporidiosis
c. Rhinoscleroma
d. Rhinitis caseosa

95. Most common head and neck symptom of wegener's granulomatosis?

a. Ulcerative lesions.
b. Subglottic stenosis
c. Serous chronic otitis media
d. Recurrent and chronic sinusitis

96. Untrue statement regarding Non-healing midline granuloma (Polymorphic Reticulosis) is?

a. No pulmonary involvment
b. Renal involvement
c. Treatment includes radiotherapy
d. Treatment includes surgery

97. All are true regarding CSF rhinorrhoea except:

a. CSF discharge stiffen the handkerchief.
b. Glucose level > 30 mg % is confirmatory
c. Intrathecal 5% fluroscein stains the CSF bright yellow green
d. Discharge is thin, watery and clear

98. Which of the following statements regarding epitaxis is untrue:

a. Anterior epistaxis is more common
b. Woodruff's plexus appear to originate from posterior pharyngeal wall and arterial in origin
c. In young persons venous bleeding is more common
d. Posterior epistaxis usually occur after 40 yrs

99. Most common site of sinonasal melanoma is:

a. Frontal sinus b. Maxillary sinus
c. Ethmoid sinus d. Nasal septum

86. a	87. a	88. c	89. b	90. c	91. c	92. b	93. a	94. b	95. d
96. b	97. a	98. b	99. d						

100. Which of the following sinus is not visible on Water's View

a. Maxillary
b. Sphenoid
c. Frontal
d. Posterior ethmoid

101. Kiesselbach's Plexus (Little's area) is contributed by all of the following except:

a. Anterior ethmoidal
b. Posterior ethmoidal
c. Greater palatine
d. Sphenopalatine arteries

102. Madhuri, a 35-year- old teacher, complains of a nasal quality to her voice, as well as a blocked and runny nose. She now has lost her sense of taste and smell. She also complaint of post nasal drip, she has recently been diagnosed as having asthma and has been started on oral steroids inhalers. Examination confirms the polyp-like swellings within the nose on both side. History of an adverse reaction to which drug should be enquired specifically:

a. Minoxidil
b. Cisplatin
c. Aspirin
d. Neomycin

Rhinology – Explanations

1. D. Ethmoid sinus

Ethmoid Sinus

Embryology: 3–4 cells at birth (most developed paranasal sinus at birth),formed from 5 ethmoid turbinals (1. agar nasi, 2. uncinate, 3. ethmoid bulla, 4. ground lamella, 5. posterior wall of the most posterior ethmoid cell)

Volume at Adult: 10–15 aerated cells, total volume of 2–3 ml (adult size at 12–15 years old)

2. B. Maxillary sinus

Maxillary Sinus

- Embryology: first to develop in utero, biphasic growth at 3 and 7–18 years old
- Volume at Adult: typically 15 ml (largest paranasal sinus)
- Drainage: ethmoid infundibulum (middle meatus, 10–30% have accessory ostium)

3. A. second bicuspid and first and second molars

1. Alveolar process of maxilla (contains second bicuspid (Premolar) and first and second molars),
2. Posterior maxillary wall (contains pterygopalatine fossa housing the maxillary artery, pterygopalatine ganglion, and branches of the trigeminal nerve)

4. A. Agger Nasi Cells

- Agger Nasi Cells: most anterior of anterior ethmoid cells
- Ground (Basal) Lamella: posterior bony insertion of the middle turbinate which separates anterior and posterior ethmoid cells; posterior extension of the middle turbinate
- Onodi Cells: ethmoid cells that pneumatize lateral or posterior to anterior wall of the sphenoid, commonly mistaken as a sphenoid cell, optic nerve may indent into the lateral wall
- Haller Cells: ethmoid cells that extend into maxillary sinus above the ostium, pneumatize the medial and inferior orbital walls
- Lamina Papyracea: lateral thin bony wall of the ethmoid sinus, separates orbit from ethmoid cells as a part of the medial orbital wall
- Fovea Ethmoidalis: roof of ethmoid sinus

5. D. Mitral cells are tertiary order neurons

Olfactory receptors

- Basal cells of olfactory epithelium are undifferentiated stem cells, that continuously turn over and replace the olfactory receptors, these are the only neurons in adult human which replace themselves.
- CN I (Olfactory nerve)
- Carries information from olfactory receptor cells to olfactory bulb.
- Its axons are unmyelinated C fibres
- These are smallest and slowest fibres in nervous system

CN V (Trigeminal)

Carries noxious, painful stimuli

E.g. Ammonia

In a fracture of cribriform plate there could be hyposmia or anosmia, however response to ammonia will be intact because this response will be carried by CN V.

Mitral Cells

- These are second order neurons
- Output of mitral cells forms olfactory tract which projects to prepiriform cortex.

6. A. Aspiration of septal swelling

- Septal hematoma is generally secondary to traumatic septal hematoma
- Septal hematoma is collection of blood between the perichondrium of nasal septum and the septal cartilage.

- Nose is the most prominent part of the face and hence is more prone for injuries resulting in a hematoma formation in the nasal septum.
- It is generally bilateral
- The dominant symptom is nasal obstruction. The treatment of choice is immediate aspiration or drainage

7. D. Syphilis

- Syphilis causes perforation of bony part of septum.
- Wegner's granulomatosis causes perforation of both bony and cartilaginous parts.

8. C. Bulla ethmoidalis is the anterior most anterior ethmoidal air cell

Agger nasi is the anterior most anterior ethmoidal air cell. It is also called fourth turbinate.

- Supreme turbinate is a variation. It is another small turbinate sometimes present above superior turbinate.
- Concha bullosa means pneumatised middle turbinate.
- Anterior ethmoid air cells are from 2-8. Posterior ethmoid air cells are 1-8
- Haller cell are anterior ethmoid air cells lying in floor of orbit

9. D. Frontal sinus

- Maxillary sinus -- Present at birth and radiologically visualized by 4-5 months of age
- Frontal sinus develops in the fourth year of life. It is radiographically visible in children more than 6 year of age
- Ethmoid sinus is present at birth. Radiologically appreciable by 1 year of age.

10. A. 4-5mth

Sphenoid Sinus

- Embryology: evagination of nasal mucosa into sphenoid bone
- Volume at Adult: 0.5–8 ml (adult size at 12–18 years old)
- Drainage: sphenoethmoid recess in the superior meatus
- Vasculature: sphenopalatine artery (from maxillary artery), maxillary vein (pterygoid plexus)
- Innervation: sphenopalatine nerve (parasympathetic fibers and V2)
- Adjacent Structures: pons, pituitary (sella turcica), carotid artery (lateral wall), optic nerve (lateral wall), cavernous sinus (laterally), maxillary and abducens nerves, clivus

	Status at birth	Adult size	1st radiological evidence
Maxillary sinus	present	15 yrs	4-5mth
Ethmoid sinus	present	12	1 yr
Frontal sinus	not present	Until teens	6 yrs
Sphenoid sinus	not present	15 to adult	4 yrs

11. A. Sellar

- The types of the sphenoid sinus can be classified in three groups in the adult: I. conchal, II. presellar, and III sellar types, depending on the extent to which the sphenoid bone is pneumatized.
- In the conchal type, the area below the sella is a solid block of bone without an air cavity.
- In the presellar type, the sphenoid sinus has moderate air cavity with no sellar indentation.
- In the sellar type, which is the most common, the corpus of the sphenoid is well pneumatized with full indentation of the sella into the sinus and extends posteriorly until the clivus
- The conchal type is most common in children and infrequent in the adult (Rhoton).

12. A. Rhinovirus

Acute Sinusitis Pathogens

- Viral: rhinovirus (most common)
- Bacterial: S. pneumoniae (most common bacterial agent), H. influenzae, B. catarrhalis, S. aureus, S. pyogenes

13. D. 12 weeks

Sinusitis (or rhinosinusitis) is defined as an inflammation of the mucous membrane that lines the paranasal sinuses and is classified chronologically into several categories:[2]

- Acute rhinosinusitis — a new infection that may last up to four weeks and can be subdivided symptomatically into severe and non-severe;
- Recurrent acute rhinosinusitis — four or more separate episodes of acute sinusitis that occur within one year;
- Subacute rhinosinusitis — an infection that lasts between four and 12 weeks, and represents a transition between acute and chronic infection;
- Chronic rhinosinusitis — when the signs and symptoms last for more than 12 weeks; and
- Acute exacerbation of chronic rhinosinusitis — when the signs and symptoms of chronic rhinosinusitis exacerbate, but return to baseline after treatment.

14. A. Maxillary sinus and anerior ethmoids

Pediatric Sinusitis

- Usually involves the maxillary sinus and anterior ethmoids (the sphenoid and frontal sinuses are less developed)

15. B. Ethmoid Sinus

The presence of 2 major factor and 1 minor factor, or 1 major factor and 2 minor factor, is strongly suggested of sinusitis.

Frontal Sinusitis	Frontal headache, oedema of upper eye lid
Maxillary Sinusitis	Pain referred to gums , odema of lower eye lid
Sphenoid sinusitis	Headache: Usually localised to the occiput or vertex. Postnasal discharge
Ethmoid Sinusitis	Pain over bridge of the nose,oedema of both lids

16. A. Ethmoid sinus

- "In children, the ethmoid sinuses are most commonly affected sinus in sinusitis."
- "Etmoid and maxillary sinuses are first to develop and are most commonly involved in sinusitis.

17. A. Purulent nasal discharge

- Most common presentation of chronic sinusitis is purulent nasal discharge

18. A. (CT) Scan

Imaging Technique For Sinusitis

- Computerized tomography (CT) scanning is currently the method of choice for sinus imaging.

19. C. MRI

Chronic Invasive Fungal Sinusitis

- Pathogens: Aspergillosis, Saprophytics (Mucor, Rhizopus, Absida)
- MRI of paranasal sinus (image of choice,enhancement in T2-weighted images from fungal elements)
- Rx: surgical debridement and long-term amphotericin B and itraconazole (1 year)

20. C. Both

Cystic Fibrosis and Sinusitis

- Cystic Fibrosis (CF): autosomal recessive multisystem disorder
- Universally develop chronic sinusitis
- 10% associated obstructive nasal polyps
- Sweat chloride test >60–90 mmol per liter

Pathogens: higher risk for pseudomonal infections (Burkholderia capacia) and methicillin resistant S. aureus (MRSA)

Management of Sinusitis

- Attempt initial conservative medical management with mucolytics, topical corticosteroids, and hypertonic saline irrigations
- Avoid antibiotics (may develop resistant pathogens)
- Avoid surgical management (high recurrence rate, increases nasal scarring, patients do not tolerate

long-term general anesthesia due to retained pulmonary secretions)

21. C. Mucor

- Rhinocerebellar disease is caused by mucor.
- Ischaemic necrosis of inferior turbinate, palate and sinuses

22. A. Frontal sinus

- Mucocele: obstructed sinus that undergoes expansion from mucous secretion
- Frontal sinus most commonly involved

23. B. Cystic tender swelling

- Mucocoele of the frontal sinus is a cystic non tender swelling.
- It can displace the eyeball forward, downward and laterally.
- The patient presents with headache, diplopia and proptosis.
- Treatment is frontoethmoidectomy which facilitates free drainage of frontal sinus into the middle meatus.

24. D. Azoospermia

Kartagener's Syndrome

Triad

1. Chronic rhinitis/sinusitis/otitis media
2. Bronchiectasis
3. Situs inversus

25. A. Anterior nares

- Ozena, which is also called rhinitis sicca or atrophic rhinitis, is a rare disorder of the nasal passages. It occurs most often in arid regions such as India, Egypt and the Middle East as well as in many other developing nations.
- Rhinitis sicca is most commonly seen on anterior nares.

26. D. Velopharyngeal insufficiency

Rhinolalia

- Nasal speech or nasal intonation of speech
- Rhinolalia clausa
- Hyponasality
- Blockage of nose or nasopharynx due to rhinosinusitis, allergic rhinitis, polyp or mass, adenoids, functional
- Lack of resonance of words resonated in nasal cavity like m, n, ng
- Rhinolalia aperta
- Hypernasality
- Failure of nasopharynx to cut off from oropharynx or extra openings between oral and nasal cavities due to short soft palate, soft palate paralysis, palatal perforation, after adenoidectomy and functional
- Nasal resonance for all the words even those having little resonance

27. B. Bilateral abductor palsy

- Abductor palsy is paralysis of the posterior cricoarytenoid due to lesion involving the recurrent laryngeal nerve or its parent trunk vagus.
- Hypernasality occurs in palatal palsy which results only due to Vagal involvement.
- Presenting feature is stridor only if there is bilateral involvement of the abductors of vocal cord compromising the airway (unilateral lesions present as change in voice).
- Laryngomalacia do not present as hypernasality, though stridor is the commonest presentation.

28. A. Frontal lobe abscess

- Typical features of frontal lobe abscess are present here – triad of fever, headaches, and personality changes.
- Papilledema signifies raised ICT. Though meningitis and encephalitis presents as fever and headaches, personality changes are not seen usually.
- Frontal bone osteomyelitis presents as doughy forehead swelling (Pott's puffy tumor).

29. B. CSF rhinorrhea

- CSF rhinorrhea does not occur in fracture zygoma.
- Diplopia and trismus are features of the same.
- Epistaxis occurs following bleeding

into the antrum associated with involvement of the infra-orbital margin.

30. C. Woodruff's plexus

- Woodruff's plexus: appear to be originated from the posterior pharyngeal wall and are venous in origin.

31. D. Meningoencephalocele

- Compressile/pulsatile swelling root of nose is most likely to be a meningoencephalocele.
- D/D includes Dermoid cyst and Glioma, which are not compressible.
- Lacrimal cyst occurs towards the medial canthus, while ethmoid sinus pathology compresses the orbit causing proptosis and diploma.
- A-V malformations are not common toward the root of nose.

32. A. CN II

Other Complications

Orbital Apex Syndrome

- Similar to Superior Orbital Fissure Syndrome with added involvement of optic nerve (papilledema, vision changes)

33. C. Frontal osteomyelitis

- Sinocutaneous Fistula: usually begins as a frontal osteomyelitis

34. C. Preseptal Cellulitis

Stages of Orbital Complications

1. Periorbital (Preseptal) Cellulitis: eyelid edema, erythema, tenderness; no vision changes, chemosis, proptosis, or restriction of ocular muscles
2. Orbital Cellulitis: proptosis, chemosis, may cause vision changes (anterior pupillary defect), may limit extraocular muscles.
3. Subperiosteal Abscess: collection of pus between bone and periosteum, chemosis, may displace globe (proptosis), restrict extraocular motion, and affect vision; Rx: urgent surgical decompression
4. Orbital Abscess: collection of pus in orbital soft tissue, proptosis, chemosis, restricted extraocular motion, may have no light perception (may be reversible); Rx: urgent surgical decompression

35. A. Synechia

Complications of Sinus Surgery

Synechia

- Most common complication of endoscopic sinus surgery
- Scarring most commonly occurs between middle turbinates and nasal wall

Diplopia: orbital muscle injury, most commonly from medial rectus and superior oblique muscles

36. A. Anterior ethmoid artery

Retrobulbar Hematoma

- Pathophysiology: most commonly from retraction injury of the anterior ethmoid artery which causes increased orbital pressure that compresses the vascular supply to the optic nerve, also may occur from venous injury near the lamina papyracea

Other Complications

Residual disease,hematomas and seromas (abdominal fat graft complication of osteoplastic flap surgery), facial edema (especially from caldwell-luc procedures), aspiration of packing material, toxic shock syndrome, osteomyelitis, tooth numbness and pain (caldwell-luc), embossment (frontal sinus obliteration)

37. C. Nasal vestibule

Keratotic Papilloma (Benign Squamous Papilloma, Vestibular Wart)

- Pathophysiology: benign lesions arise from squamous epithelium (associated most commonly with Human Papilloma Virus 6 and 11)
- Low malignant potential.

38. D. Translucent blood less mass

Inverted Papilloma

- Pathophysiology: arise from proliferation of reserve cells in squamous mucosa (associated with human papilloma virus): More common in males

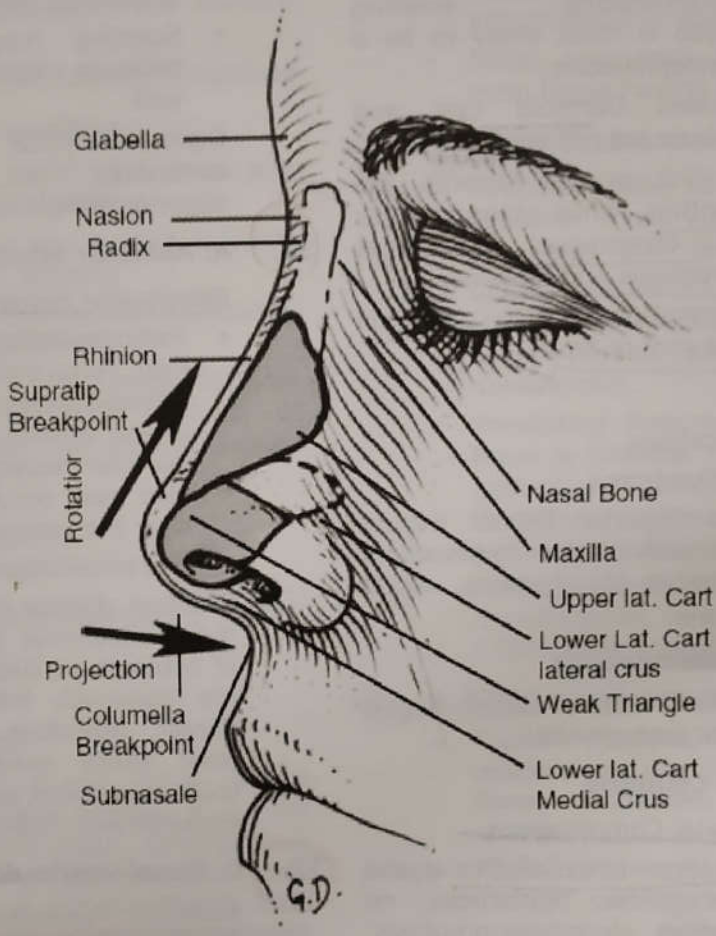
- Often misdiagnosed as a nasal polyp (polyps are more translucent, bilateral, and bleed less)
- unilateral obstruction, sinusitis, epistaxis, rhinorrhea, diplopia, typically presents on the lateral nasal wall (rarely on the nasal septum), may be associated with a benign nasal polyp

39. C. Lateral wall

Nasal Cavity

- Most common tumour: squamous cell carcinoma
- Most common site of squamous cell carcinoma: Lateral wall
- Most common site of malignant melanoma:

40. B. Radix.



41. C. Middle turbinate

Reference – Otolaryngology by R.Pasha --9

Nasal Valves

Internal Nasal Valve (Limen Nasi):

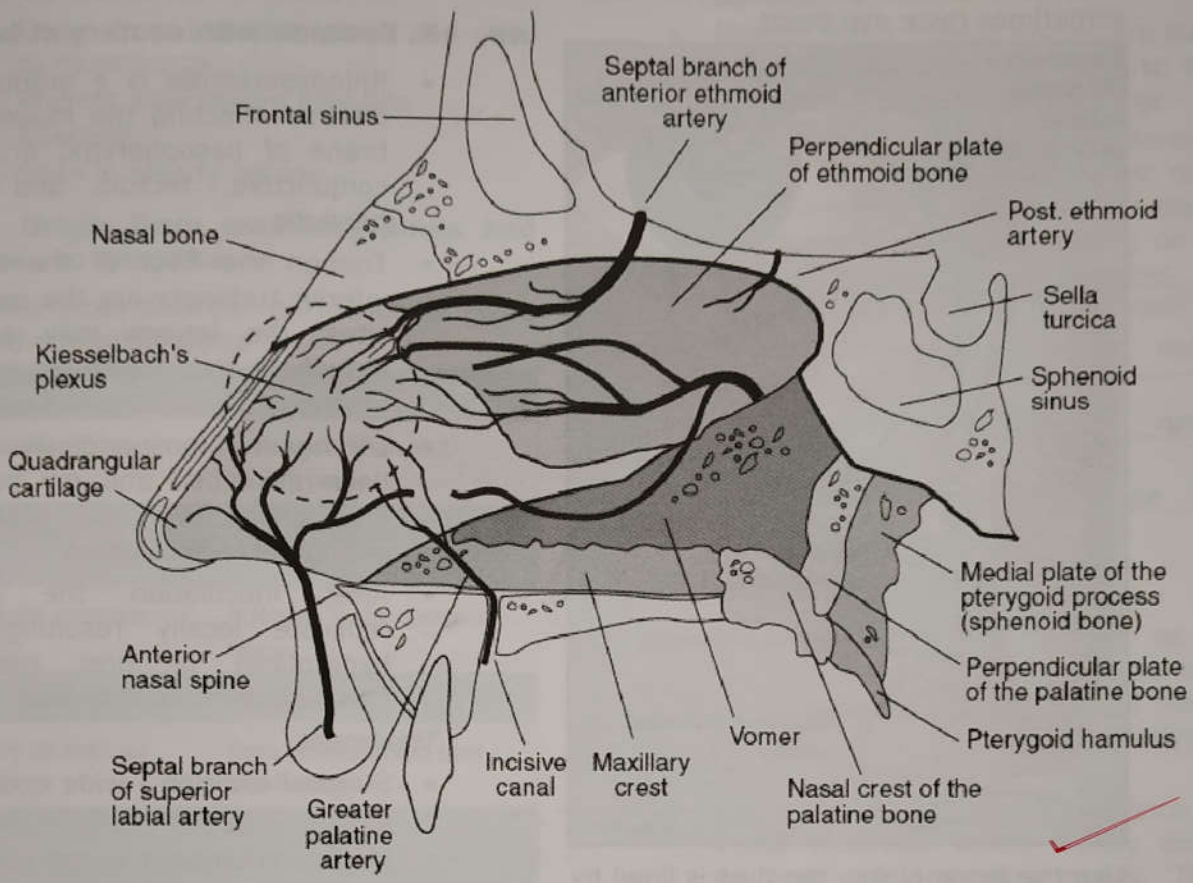
- Bordered by septum, anterior edge of the inferior turbinate, and caudal edge of upper lateral cartilage
- Narrowest segment (50% of total nasal resistance)
- Potential site of obstruction secondary to bernoulli's principle
- (Narrowed segment accelerates nasal airflow resulting in a decrease in intraluminal pressure)

42. B. 7

Important Points:

1. Humidification ----- 1000 ml of water evaporated/24 hrs from nasal mucosa
2. Ph of nasal secretion --- 7

43. B. Perpendicular plate of the ethmoid



Septal Anatomy

- Quadrangular Cartilage: septal cartilage
- Perpendicular Plate of the Ethmoid: projects from cribiform plate to septal cartilage
- Vomer: posterior and inferior to perpendicular plate
- Maxillary Crest (Palatine Bone): trough of bone that supports the septal cartilage
- Anterior Nasal Spine: bony projection anterior to pyriform aperture

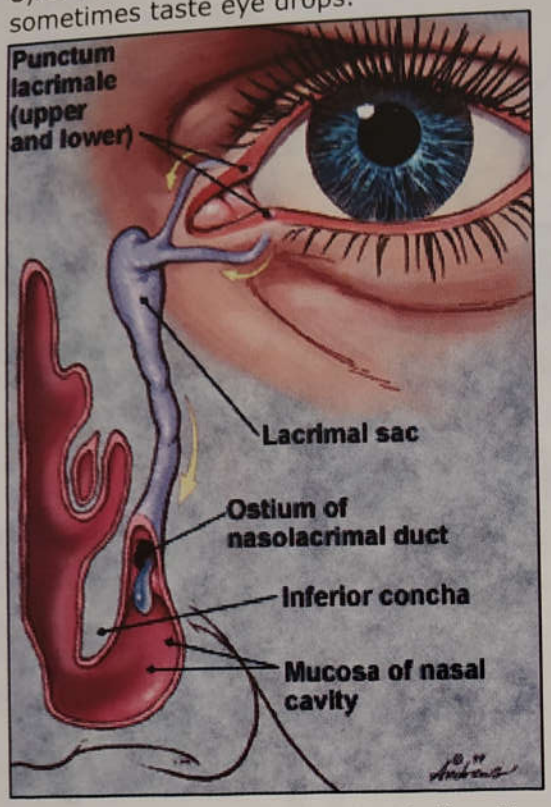
44. D. Sphenoethmoidal recess

- Each sphenoidal sinus opens into the roof of the nasal cavity via apertures on the posterior wall of the sphenoethmoidal recess directly above the choana. The apertures are located high on the anterior walls of the sinuses themselves.
- Because only thin shelves of bone separate the sphenoidal sinuses from the nasal cavities below and hypophyseal fossa above, the pituitary gland can be surgically approached through the roof of the nasal cavities by first passing through the anterioinferior aspect of the sphenoid bone and into the sinuses, followed by entry through the top of the sphenoid bone into the hypophyseal fossa.
- If a fast-growing tumor erodes the floor of the sinus, the vidian nerve could be in danger. If the tumor spreads laterally, the cavernous sinus and all its constituent nerves could be in danger.

45. C. Inferior meatus

The nasolacrimal duct (sometimes called tear duct) carries tears from the lacrimal sac into the nasal cavity. Excess tears flow through nasolacrimal duct which drains into the inferior nasal meatus. This is the reason the nose starts to run

when a person is crying or has watery eyes from an allergy, and why one can sometimes taste eye drops.



Like the lacrimal sac, the duct is lined by stratified columnar epithelium containing mucus-secreting goblet cells, and is surrounded by connective tissue.

46. B. Lacrimal

The fleshy external end of the nasal septum is sometimes also called columella.

The nasal septum is composed of five structures:

- perpendicular plate of ethmoid bone
- vomer bone
- cartilage of the septum
- crest of the maxillary bone
- crest of the palatine bone

47. C. 6

Radiological Appearance of Sinuses

- MAXILLARY---4 MTHS
- FRONTAL--- 6 YRS
- SPHENOID--- 4 YRS
- ETHMOIDAL--- 1 YRS

48. C. 5-10 mm/min

- Ciliary movement rate of nasal mucosa is about 5-10 mm/min

49. B. Excision with cautery at base

- Rhinosporidiosis is a granulomatous disease affecting the mucous membrane of nasopharynx, oropharynx, conjunctiva, rectum and external genitalia.
- Though the floor of the nose and inferior turbinate are the commonest sites, the lesions may appear in elsewhere too. Traumatic inoculation from one site to others is common.
- Laryngeal rhinosporidiosis too has been described and my be due to inoculation from the nose during endotracheal intubation.
- After inoculation the organism replicate locally resulting in the hyperplasia of host tissue and localised immune response.

Treatment

- Surgical excision - wide excision with electro-coagulation of the lesion base
- Medical treatment is not so effective but treatment with a year long course of dapsone has been reported

50. B. Rhinoscleroma

Rhinoscleroma:

Organism: Klebsiella rhinoscleromatis

In India, Northern parts more affected

- Atrophic Stage:
- Granulomatous Stage:
- Cicatrical Stage:

Mikulicz Cells:

Large foam cells with a central nucleus & vacuolated cytoplasm (contain the bacilli)

Russell Bodies:

Eccentric nucleus and a pink- staining cytoplasm- Look like plasma cells.

Treatment:

1. Streptomycin (2 gm/day)
2. Tetracyline (2 gm/day) minimum : 4-6 wks (till 2 consecutive samples negative)
3. Rifampicin: 450 mg daily 6 wks

51. AIIMSSWS17 Regarding antrochonal polyp which one is true:

a. Origin from maxillary sinus and goes to nasopharnx
b. Present with severe bleeding
c. Bilateral
d. Seen in elderly person

51. A. Origin from maxillary sinus and goes to nasopharnx

Differences between antrochoanal polyp and ethmoidal polyp

Ethmoidal polypi	Antrochoanal polyp
Seen in adults	Seen in children and adolescents
Males: Females =2:1 to 4:1	Males> Female
Allergy is the common cause	Infection is the common cause
Multiple (bunch of grapes)	Unilateral
Seen easily on anterior rhinoscopy	Seen commonly in post nasal exam
X ray PNS may show hazy ethmoids and normal maxillary sinuses	X ray PNS shows hazy maxillary antrum
Mostly bilateral	Usually unilateral
Recurrence is common	Recurrence is uncommon
Polypectomy	Caldwel luc surgery in recurrent cases

52. B. Best seen on posterior rhinoscopy

- Antrochoanal polyp is a benign solitary polypoidal lesion arising from the maxillary sinus antrum causing opacification and enlargement of antrum radiologically without any evidence of bone destruction.
- It eixts the antrum through the accessory ostium reaches the nasal cavity, expands posteriorly to exit through the choana into the post nasal space.
- It commonly affects children and young adults.

53. A. Foreign body

- Children have a tendency to pop in various objects in to their nasal cavities.
- Most of these foreign bodies are inert and cause very little damage to the nasal cavity other than discharge.
- Sometimes chemical laden foreign bodies are not so inert, they may cause significant damage to the nasal mucosa of the patient leading on to complications. Clinical features of forgotten foreign body in the nose:
  1. Unilateraly foul smeeling nasal discharge
  2. Recurrent unilateral nasal infections
  3. Swelling and pain in the nose
  4. Unilateral nasal block

54. B. It is usually unilateral

- Atrophic rhinitis is defined as a chronic nasal disease characterised by progressive atrophy of the nasal mucosa along with the underlying bones of turbinates.
- There is also associated presence of viscid secretion which rapidly dries up forming foul smelling crusts. This fetid odor is also known as ozaena. The nasal cavity is also abnormally patent.
- The patient is fortunately unaware of the stench emitting from the nose as this disorder is associated with merciful anosmia.

The triad of atrophic rhinitis are 1. Fetor, 2. crusting and 3. atrophy. Age of onset: Usually commences at puberty. Females are commonly affected than males.

The presenting symptoms are commonly nasal obstruction and epistaxis. Anosmia i.e. merciful may be present making the patient unaware of the smell emanating from the nose.

Management: Nasal douching - The patient must be asked to douche the nose atleast twice a day with a solution prepared with: Sodium bicarbonate - 28.4 g Sodium diborate - 28.4 g Sodium chloride - 56.7 g mixed in 280 ml of luke warm water. Surgical management: 1. Submucous injections of paraffin, and operations aimed at displacing the

lateral nasal wall medially. This surgical procedure is known as Lautenslauger's operation.

2. Recently teflon strips, and autogenous cartilages have been inserted along the floor and lateral nasal wall after elevation of flaps.

3. Wilson's operation - Submucosal injection of 50% Teflon in glycerin paste.

4. Young's operation –

55. D. Trauma

- Trauma is one of the common local causes of epistaxis. It is commonly caused by the act of nose picking in the Little's area of the nose.
- This is commonly seen in young children. Acute facial trauma may also lead to epistaxis.
- Patients undergoing nasal surgeries may have temporary episodes of epistaxis.

56. D. Diplopia

The classic symptoms of acute sinusitis in adults usually follow a cold that does not improve, or one that worsens after 5 - 7 days of symptoms. Symptoms include:

- Bad breath or loss of smell
- Cough, often worse at night
- Fatigue and generally not feeling well
- Fever
- Headache -- pressure-like pain, pain behind the eyes, toothache, or facial tenderness
- Nasal congestion and discharge
- Sore throat and postnasal drip

Symptoms of chronic sinusitis are the same as those of acute sinusitis, but tend to be milder and last longer than 12 weeks.

Symptoms of sinusitis in children include:

- Cold or respiratory illness that has been improving and then begins to get worse
- High fever, along with a darkened nasal discharge, for at least 3 days
- Nasal discharge, with or without a cough, that has been present for more than 10 days and is not improving

57. A. Occiput

- Sphenoid sinusitis typically causes pain in the occipital region. Although the sphenoid sinuses are less frequently affected, infection in these sinuses can cause earaches, neck pain, and deep aching at the top of your head.
- Acute sphenoid sinusitis is uncommon and usually seen as part of a pansinusitis, an inflammation of all the sinuses on one or both sides of the nose. Chronic sphenoid sinusitis is also an uncommon condition and is typically treated as part of a combined treatment or surgery for sinusitis in multiple areas.
- Treatment for sphenoid sinusitis may be medical or surgical, with initial treatment usually involving antibiotic administration plus painkillers and antihistamines.

58. B. Cribriform plate of ethmoidal bone

- CSF discharging from the nose is known as CSF rhinorrhoea. Cerebrospinal fluid is a clear colorless fluid that bathes the brain and spinal cord, cushioning them against trauma.
- In fact in literal terms the brain and spinal cord floats in the cerebrospinal fluid. The specific gravity of brain is only 4% of that of CSF, hence it could float easily in the CSF.
- The high pressure leaks are commonly encountered in the cribriform area. This is due to the fagility and unique anatomy in this area i.e. (prolongation of the subarachnoid space along the olfactory filaments).
- The leak during these conditions functions as a safety valve alleviating the increased intracranial pressure. These high pressure leaks are associated with slow growing tumors and 1/4 of them have hydrocephalus.
- Pituitary neoplasms are the most common type of intracranial tumor found, next common are the posterior cranial fossa lesions. Direct invasion of the skull base is not the usual mechanism of this leak.

- Closure of these leaks may worsen the condition of the patient if the causative lesion is left untreated.

59. D. Beta-2 transferrin

Tests for detecting CSF rhinorrhoea:

Reservoir sign: This test is ideally performed immediatly on rising from the bed. The patient is asked to place the chin over their chest. The patient must stay in that position for one full minute. Clear fluid dripping from the nose is CSF.

Handkerchief test: Discharge from the nose is blown into a handkerchief and is allowed to dry. If the discharge is CSF the handherchief will not stiffen, if the discharge is secretions from the nose the handkerchief stiffens due to the presence of mucin in the nasal secretions.

The most sensitive laboratory test is to look for Beta 2 transferrin in the nasal secretions. In CSF Beta 2 transferrin is present, and it is absent in normal nasal secretions.

The most sensitivve test to detect CSF leak is intrathecal radionucleotide test.

60. B. Seen more often in females

Dhingra– 216

- Inverted papilloma is a transitional cell papilloma also called Schineiderian papilloma/Ringertz Tumor.
- It is the most common benign neoplasm of the nose and paranasal sinuses.
- It presents in the middle age (40-70 yrs.) as soft friable mass resembling polyp.
- More common in males (male : female = 5 : 1).
- Arises almost exclusively from the lateral wall of the nose and only occasionally from the septum.
- It is always unilateral.
- Patients mainly complain of nasal obstruction, rhinorrhea & unilateral epistaxis,
- There is coincidental malignancy else where in the upper respiratory tract in about 4% of the cases and malignant transformation of the tumor occurs in about 8% cases.
- Treatment is adequate local excision. If it arises in maxillary sinus, then a radical antrostomy is carried out. If it arises in the ethmoidal sinus, an external ethmodiectomy is done. If it arises from nose, treatment is wide surgical excision by lateral rhinotomy
- Has a tendency to recur even after removal.

61. D. Secondary syphilis is the common association

Dhingra– 173

- Nasal syphilis may be :
- Acquired : — Primary e.g. chancre in vestibule
- Secondary e.g. simple rhinitis, crusting and fissuring
- Tertiary e.g. Gumma
- Congenital :
- Early (first 3 months) : Presenting as snuffles, purulent nasal discharge, fissuring excoriation.
- Late (around puberty) : Gumma in septum and other stigmatas.
- Saddle nose deformity occurs due to collapse of nasal bridge.
- Atrophic rhinitis is a complication.
- Teritary syphilis is a common association : primary and secondary is rare association in nasal syphilitic.
- Septal perforation occurs in bony part in case of syphilis.

62. B. 2–7 hours

Regulation Response Types

1. Asymmetrical Congestive Response (The Nasal Cycle): Normal physiological congestion/decongestion cycle alternating between nasal sides every 2–7 hours
2. Symmetrical Congestive Response: temporary bilateral congestion induced by exercise, changes in body position, hyperventilation, cold air, sulfur, histamine, and other irritants; lasts 15–30 minutes

63. B. Trauma

Corrected by:

Autograft: Cartilage, Bone (iliac crest)

Synthetic implants: silicon, teflon

64. C. Iliac crest

Saddle nose------Augmentation rhinoplasty

Hump nose ------ Reduction rhinoplasty

65. C. Crooked nose

- If midline of dorsum from frontonasal angle to the tip is curved: it results in Crooked nose

66. A. Rhinophyma.

Rhinophyma

- Pathophysiology: massive hypertrophy of sebaceous glands (form of acne rosacea), associated with Demodex folliculorum
- SSx: begins with coarsening of nasal skin over cartilaginous portion of the nose, develops into a large protuberant lobular swelling of the nasal tip, nasal obstruction
- Rx: surgical full thickness

67. B. Rhinolith

Rhinoliths/Nasal Foreign Bodies

- Pathophysiology: concretions secondary to encrustation of foreign body or longstanding nasal crusting may form rhinoliths
- SSx: unilateral, purulent rhinorrhea, pain, epistaxis

68. B. Rodent ulcer

Rodent ulcer

- M.C sites ---- tip and ala
- Presentation ---- cyst,papulo-pearly nodule,ulcer
- Nodal mts----- Rare (↑ in SCC)
- Early --- cryosurgery
- Late --- surgery with 3-5 mm
  - 2nd Most common malignant tumour invading skin of nose is SCC
  - Least common malignant tumour invading skin of nose is melanoma

69. C Rhinoscleroma

Definition: Chronic, progressive granulomatous infection of nose and upper lip area. This can also involve larynx (scleroma Larynx)

Organism: Klebsiella rhinoscleromatis (Gram negative: Frisch Bacillus).

It is more common in northern part of India

Clinical Picture:

1. Atrophic Stage

Atrophic changes occur in the floor of the nose, septum and turbinates

2. Granulomatous Stage:

Subdermal infiltration of the lower part of the external nose and the upper lip (woody feel)

3. Cicatrical Stage: in this stage due to fibrosis, patient develops cosmetic deformity

Diagnosis:

Submucosal infiltration of plasma cells, lymphocytes, eosinophils, Mikulicz cells & Russel bodies

Mikulicz Cells:

Large foam cells with a central nucleus & vacuolated cytoplasm (contain the bacilli)

Russell Bodies:

Eccentric nucleus and a pink- staining cytoplasm- Look like plasma cells.

Treatment:

1. Streptomycin (2 gm/day)
2. Tetracyline (2 gm/day)

70. C. Vallecula

- Anterior pillar, posterior pillar, palatine tonsil, posterior one third tongue, Vallecula lingual tonsil, soft palate, uvula are parts of oropharynx.

71. A. Malignancy of infrastructure of maxillary sinus has poor prognosis

- Ohngren's line is from medial canthus of the eye to the angle of mandible. This line divides maxilla into superstructure and infrastructure. The malignancy of superstructure has poor prognosis due to proximity to orbit.
- In woodworker's the adenocarcinomas are more common and that too of ethmoid sinus. In total maxillary sinus is the most common sinus

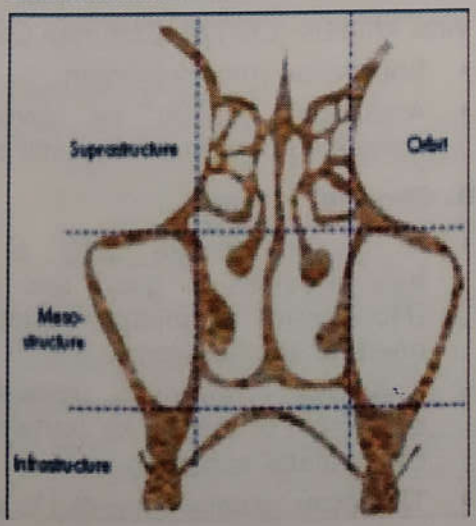
to develop malignancy. In nickel exposed patents, the most common malignancy is squamous cell carcinoma.

- Ringertz tumour is other name of inverted papilloma of nose. It is a benign but locally invasive tumour and can show malignant conversion

72. D. Respiratory area of nose

Lederman's Classification

- 2 horizantal lines of sebileau pass through floors of orbits & maxillary sinus, producing:
- Supra structure: ethmoid, sphenoid & frontal sinuses : olfactory area of nose.
- Mesostructure : maxillary sinus & respiratory part of nose
- Infrastructure : Alveolar process



73. B. Septoplasties.

Septal Perforations

Causes: septoplasties (most common cause, >50%), infections (tertiary syphilis), trauma (nose picking), neoplasms, granulomatous disease, vasculitis, cocaine abuse, corticosteroid nasal spray

Rx

1. Saline irrigation
2. Consider sliding or rotating mucoperichondrial flaps with or without a fascial graft; contraindicated for large perforations (approximately >2 cm of vertical height), cocaine abusers, malignancy, granulomatous or vascular diseases
3. Silastic button

74. C. Both septum and dorsum

- A crooked nose bends to one side or the other, lacking a straight bridge.
- These noses can have either a curved or bumpy appearance, and can also be too big or too small.
- A crooked nose can be caused by a deviated septum or an injury that has broken the bones.
- To straighten the nose, the bones need to be moved into a better position and are often reduced before being reshaped.

75. A. Front.

- " Jarjaway" fracture of nasal septum results from blow from the front;it start just above the anterior nasal spine and runs horizontally backwards just above the junction of septal cartilage with the vomer.

76. B. Below.

- "Chevallet" fracture of nasal septum from blow from the below;it runs vertically from the nasal spine upwards to the junction of bony and cartilaginous dorsum of nose.

77. B. Nasal valve.

Cottle test is done to rule out obstruction at the level of nasal valve/vestibular

78. B. Ethmoid Sinus

When the mucosal lining (sinus mucosa) of the ethmoid sinuses develops inflammation, it results in swelling (edema) of the mucosa. Considering that ostia (conduit that drains ethmoid sinuses into the nose) is very small in diameter to start

with, inflammation/swelling of the mucosa causes the blockage of the ostia. Reduction in the flow of the mucociliary drainage causes the mucus content to accumulate within the ethmoid sinuses. Build up of mucosal secretions within the sinuses eventually results in an infection -a condition known as Ethmoid Sinusitis or Ethmoiditis.

Symptoms of ethmoid sinusitis often includes:

- Headache in the temples,
- Pain in the lower forehead,
- Stuffy/Runny nose,
- Breathing difficulties,
- Sinus pain and/or sinus pressure around the inner corners of the eyes,
- Worsening of the symptoms while lying on the back and improvement of the same while the head in upright position.

79. B. Sphenoid sinusitis

- In sphenoiditis, vertex headache is common, but pain can be localized in frontal, temporal, periorbital, or occipital regions or can be vague or occur anywhere in the craniofacial region

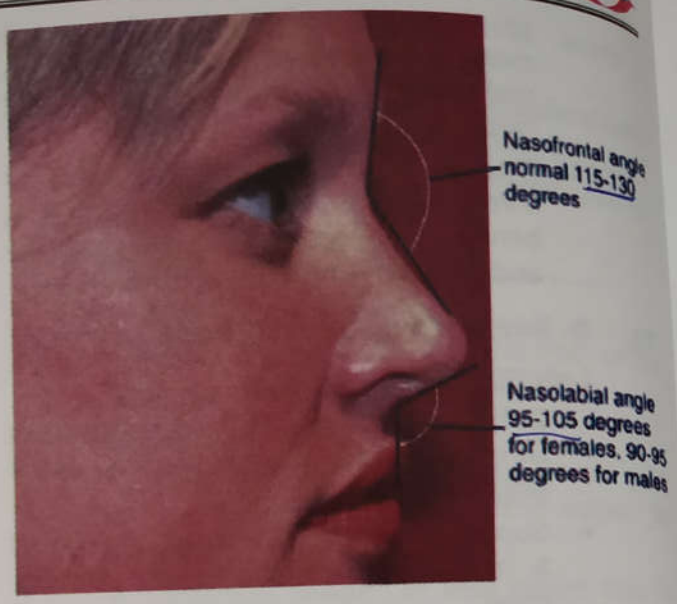
80. B. Sphenoid sinus

- Paranasal sinus mucoceles most commonly occur in the third or fourth decades of life with a slight male predilection.
- The frontal sinus is most commonly affected followed by the ethmoid sinuses, with reports suggesting 70–90 % of mucoceles occur in these locations.
- Ten percent of mucoceles occur in the maxillary sinus and the sphenoid sinus is involved rarely

81. C. 4%

- Coincidental malignancy in upper respiratory tract with inverted papilloma is 4 %.
- Malignant transformation of tumor itself is 8 %

82. B. 134



83. A. Hump nose

- An operation called Reduction Rhinoplasty reduces the size of the framework of the nose over which the skin is draped. The skin itself is not touched.
- The frame of the nose which is made up of bone in its upper half and gristle (cartilage) in its lower half is approached from underneath the skin.

84. D. Coryza.

Rhinitis associated with exanthemas are Measles, Rubella and Chickenpox

Viral Rhinitis (Coryza, Common Cold)

- Rhinovirus (most common.
- Antibiotics should be given for suspected bacterial infections only

85. D. Choanal atresia

- A feeding nipple with a large hole provides a good oral airway (McGovern's technique) obviates the need for tracheostomy.
- Definitive treatment consists of correction of atresia by transnasal or transpalatal approach.
- The latter usually done at 1½ yrs.

86. A. Vidian neurectomy

Indication for vidian neurectomy:

1. Vasomotor rhinitis
2. Intrinsic rhinitis
3. Crocodile tears

87. A. Anterior ethmoid nerve

- Sluder's neuralgia is characterized by neuralgic pain in lower half of face with nasal congestion, rhinorrhea and increased lacrimation.
- It is due to neuralgia of sphenopalatine ganglion.

88. C. Inferior

Hypertrophic rhinitis

Inferior turbinate seem to be involves maximum.

SX: cauterization or lazer

89. B. Atrophic rhinitis.

Atrophic Rhinitis (Ozena)

- Pathophysiology: mucosal glands and sensory nerve fibers degenerate, epithelium undergoes squamous metaplasia, destroyed mucociliary transport

1. Ciliated columnar epitheum------ Stratified squamous epitheum
2. Merciful anosmia
3. Klebsiella ozaenae

Rx:

- Saline irrigation (Soda bicarbonate 1 part,Sodium biborate 1 part, Sodium chrolide 2 parts in 280 ml of water.)

90 C. Rhinoscleroma.

Rhinoscleroma

- Noncontagious
- Klebsiella rhinoscleromatis (Frisch's bacillus)

Histopathology:

- Mikulicz's cell (foamy histocytes containing the bacteria, "moth eaten" cytoplasm).
- Russell bodies (bloated plasma cells with bifringent inclusions)
- Pseudoepitheliomatous hyperplasia

91. C. Late Syphilis

Late Syphilis (Gumma)

- Gummas are usually solitary lesions ranging from microscopic to several centimeters in diameter.
- Upper respiratory gummas can lead to perforation of the nasal septum or palate

92. B. 2-6 wks.

Congenital Syphilis

The manifestations of congenital syphilis can be divided into three types according to their timing:

(1) early manifestations, which appear within the first 2 years of life (often at 2–10 weeks of age), are infectious, and resemble the manifestations of severe secondary syphilis in the adult;

93. A. Anterior end of inferior turbinate.

Tuberculosis

Anterior end of inferior turbinate and nasal septum: Most common site in nasal cavity.(Leprosy)

Symptoms

H&N manifestations usually secondary from pulmonary source

- Cervical Lymphadenopathy: bilateral, anterior and posterior, firm, nontender, most common H&N manifestation
- Larynx: granulation and ulcerative tissue in posterior glottis (posterior interarytenoids, laryngeal surface of epiglottis, vocal folds)
- Otologic: painless, odorless, watery otorrhea, multiple TM perforations
- Salivary Glands: diffuse glandular involvement
- Oral Cavity: ulcerative lesions

Lupus Vulgaris : Mild tuberculosis with apple – jelly nodules

94. B. Rhinosporidiosis.

Rhinosporidiosis

Rhinosporidium seebri

- SSx: friable, "strawberry" red (vascular) polypoid nasal lesion (epistaxis, obstruction)
- Histopathology: pseudoepitheliomatous hyperplasia, submucosal cysts, fungal sporangia with chitinous shells
- Rx: surgical excision with cauterization of the base and oral antifungal agents, corticosteroid injections, may consider dapsone

95. D. Recurrent and chronic sinusitis.

Wegener's Granulomatosis

Pathophysiology: idiopathic granulomatous vasculitis of upper and lower respiratory tract with glomerulonephritis (may be autoimmune)

Types: limited (no renal involvement),

systemic (pulmonary and renal involvement)

Histopathology: necrotizing granulomas (with multinucleated giant cells) with vasculitis of upper and lower respiratory tract

Rx: corticosteroids for initial control followed by cyclophosphamide, azathioprine, or methotrexate.

Head and Neck Symptoms

- Paranasal: recurrent and chronic sinusitis (60–80%, most common H&N symptom), nasal deformity, septal perforation, nasal obstruction, epistaxis
- Laryngeal: ulcerative lesions (25%), subglottic stenosis (<10%)
- Otologic: CHL, serous chronic otitis media (20–25%)

96.

B. Renal involvement.

Non-healing midline granuloma (Polymorphic Reticulosis)

- NO PULMONARY AND RENAL INVOLVMENT
- Radiotherapy followed by surgery

97. A. CSF discharge stiffen the handkerchief

Features	CSF fluid	Nasal secretion
History	Nasal or sinus surgery head injury or intracranial tumour	Sneezing, nasal stuffiness, itching in the nose or lacrimation.
Flow of discharge	A few drops or a stream of fluid gushes down when bending forwards or straining :cannot be sniffed.No stiffening	Contineous, No. effect of bending forward or staining. Can be sniffed back.
Character of discharge	Thin, watery and clear sweet	Slimy (mucus) or clear (tears)
Taste		salty
Sugar content	More than 30 mg/dl	Less than 10 mg/dl
Presence of b2 transferrin	Always present . It is specific for CSF	Always absent

99.

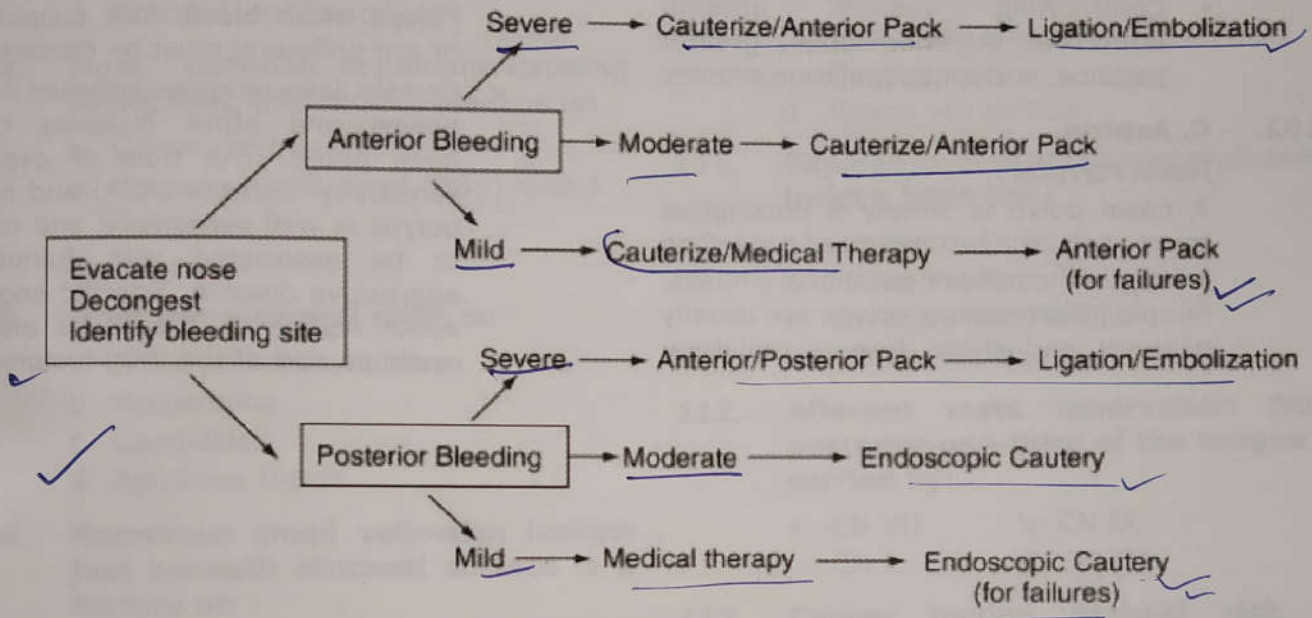
98. B. Woodruff's plexus appear to originate from posterior pharyngeal wall and arterial in origin.

Epistaxis

- Most common site of epistaxis is Little's area

	Anterior epistaxis	Posterior epistaxis
Incidence	Most common	Less common
Site	Mostly from Little's area or anterior part of lateral wall.	Mostly from posterosuperior part of nasal cavity; often difficult to localize the bleeding point.
Age	Mostly occurs in children or young adults.	After 40 years of age
Cause	Mostly trauma	Spontaneous, often due to Hypertension or artherosclerosis
Bleeding	Usually mild, Can be easily controlled by local pressure or anterior pack.	Bleeding is severe, requires hospitalization postnasal pack often required

- Ligation of the external carotid artery does not produce quite the same blood pressure reduction distally and is therefore, less effective in controlling bleeding, although blood from the ethmoidal to the nasopalatine areas may in fact be less.
- The venous bleeding, which is common in young persons, arises from the vein which lies immediately behind the columella at the anterior edge of Little's area. It runs vertically downwards and crosses the floor of the nose obliquely before joining the venous plexus on the lateral wall of the nose.
- Woodruff's plexus: appear to be originated from the posterior pharyngeal wall and are venous in origin.



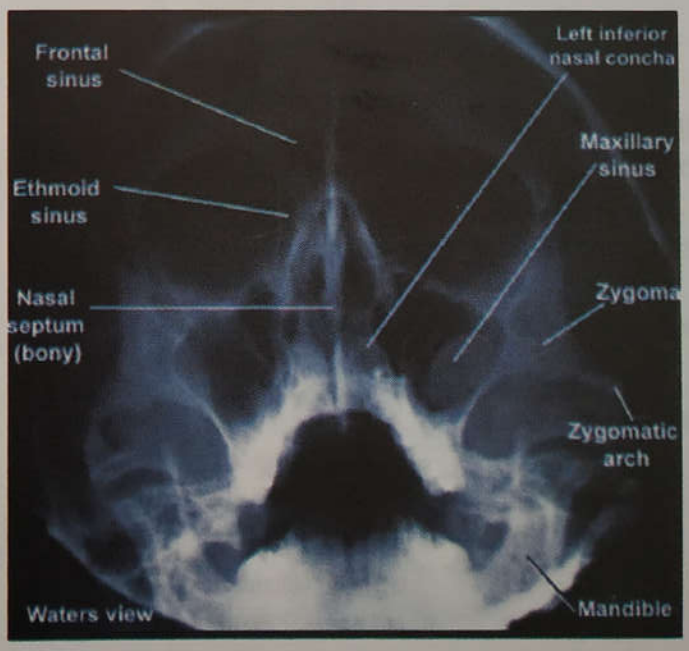
99. D. Nasal septum

Most sinonasal melanomas occur on the anterior nasal septum and middle & inferior turbinates.

Sinonasal Melanoma

- More common in women, more in elderly (5th to 8th decade)
- Most common site of sinonasal melanoma is: anterior nasal septum> middle and inferior turbinates, followed by oral cavity usually the palatine mucosa.
- May present as a sessile or polypoidal mass or ulceration, may not be pigmented always.
- Cervical LN mets are less frequent, but more often metastasise to lungs and brain.

100. D. Posterior ethmoid



101. B. Posterior ethmoidal

Kiesselbach's Plexus (Little's area)

Confluence of arterial vessels at the anterior nasal septum

- Susceptible to bleeding due to the fragile mucosa and tightly adherent to underlying mucosa affording little resistance to mechanical stress
- Contributing vessels: anterior ethmoidal, superior labial, greater palatine, and sphenopalatine arteries

102. C. Aspirin.

Nasal Polyposis

A nasal polyp is simply a descriptive term for a pedunculated swelling arising in the nose or paranasal sinuses. Simple inflammatory polyps are usually bilateral and there fore a unilateral polyp must be biopsied in order to exclude malignancy.

- They are grey/ white and often appear slightly translucent.
- They are soft and mobile on gentle probing, unlike the middle or inferior turbinates which are frequently mis-diagnosed as polyps by the inexperienced.
- Polyps which bleed, look suspicious or are unilateral must be biopsied.
- Certain associatations between nasal polyps and other diseases have been noted. The traid of aspirin-sensitivity- asthma (ASA) and nasal polyps is well recognized and tends to be associated with fulminant aggressive disease. Specific enquiry about ASA triad should be always made as part of the drug history.

Oral Cavity – Questions

103. Laterally oral cavity extends from the vermilion border of the lip to the:

a. Hard-palate
b. Soft-palate
c. Circumvallate papillae
d. Anterior tonsillar pillars

104. Most common organism causing Hand, foot, and mouth disease is:

a. Coxsackievirus A16
b. Herpes simplex virus (HSV) type 1
c. Coxsackie B
d. Echovirus

105. Most common oral ulcer is:

a. Coxsackievirus A ulcers.
b. Herpangina
c. Candidiasis
d. Aphthous Ulcers

106. Numerous small yellowish lesions just beneath mucosal surface is a feature of:

a. Black hairy tongue
b. Fordyce "spots"
c. Kaposi's sarcoma
d. Mucous retention cysts

107. Tongue covered by painless shallow or deep fissures is a feature of:

a. Macroglossia
b. Median Rhomboid glossitis
c. Fissured ("scrotal") tongue
d. Mucous retention cysts

108. Tip of tongue drains into :

a. Submental nodes
b. Ipsilateral submandibular nodes
c. Lateral retropharyngeal nodes
d. Preauricular nodes

109. Premalignant lesion with highest risk of malignancy is:

a. Leukoplakia
b. Erythroplakia
c. Mucous Retention Cysts
d. Ranulas

110. Palatal muscle innervated by CN V3 is:

a. Levator veli palatini
b. Tensor veli palatini
c. Palatoglossal
d. Tensor veli palatini

111. Papillae located at the posterolateral tongue base are :

a. Fungiform Papillae
b. Foliate Papillae
c. Circumvallate Papillae
d. Filiform Papillae

112. Afferent taste innervation from posterior one-third of the tongue is carried by:

a. CN VII b. CN IX
c. CN X d. CN XII

113. Cancer having highest risk of second primaries is:

a. Hypopharynx
b. Supraglottic
c. Oral cavity
d. Subglottic

114. Ohngren's classification is classically used for evaluating maxillary carcinoma, Ohngren's line is from?

a. Lateral canthus to angle of mandible
b. Lateral canthus to nasion
c. Medial canthus to angle of mandible
d. Medial canthus to lateral canthus

115. Minor salivary gland tumors are common on:

a. Lips
b. Buccal Mucosa
c. Alveolar Ridge
d. Hard Palate

103. d	104. a	105. d	106. b	107. c	108. a	109. b	110. b	111. b	112. b
113. c	114. c	115. d							

116. Basal cell carcinoma are common on:

a. Upper lips
b. Buccal Mucosa
c. Lower lips
d. Hard Palate

117. Study the given image and comment on the diagnosis?

a. Eagle's syndrome
b. Apert's syndrome
c. Sickler's syndrome
d. Usher's syndrome

118. Which cancer has maximum propensity to spread to cervical lymph nodes

a. Nasopharyngeal carcinoma
b. Carcinoma of hard palate
c. Carcinoma of soft palate
d. Carcinoma of mandible

119. Retropharyngeal space extends from base of skull to:

a. Hyoid bone
b. Bifurcation of trachea
c. Angle of mandible
d. Cricoid cartilage

116. a	117. a	118. a	119. b

Oral Cavity – Explanations

103. D. Anterior tonsillar pillars

- The oral cavity extends from the vermilion border of the lip to the hard-palate/soft-palate junction superiorly, to circumvallate papillae inferiorly, and to the anterior tonsillar pillars laterally

104. A. Coxsackievirus A16

Hand, foot, and mouth disease (coxsackievirus A16 most common)	Oral mucosa, pharynx, palms, and soles	Fever, malaise, headache with oropharyngeal vesicles that become painful, shallow ulcers; highly infectious; usually affects children under age 10	Incubation period 2–18 days; lesions heal spontaneously in 2–4 weeks

105. D. Aphthous Ulcers

Aphthous Ulcers

- Most common oral ulcer
- Single or clusters of painful ulcers with surrounding erythematous border: Aphthous ulcers
- Sutton's Disease: recurrent aphthous ulcers (major type)
- Rx: observation (self-limiting)

106. B. Black hairy tongue

Black hairy tongue	Dorsum of tongue	Elongation of filiform papillae of tongue, which become stained by coffee, tea, tobacco, or pigmented bacteria	Improves within 1–2 weeks with gentle brushing of tongue or discontinuation of antibiotic if due to bacterial overgrowth

107. C. Fissured ("scrotal") tongue

Fissured ("scrotal") tongue	Dorsal surface and sides of tongue covered by painless shallow or deep fissures that may collect debris and become irritated

108. A. Submental nodes

Tongue

- Tip ------ Submental/ Jugulo-omohyoid.
- Lateral ---- Ipsilateral submandibular/Deep cervical.

109. B. Erythroplakia

Leukoplakia

- Premalignant Bucal Mucosa (M.C oral commissural.)

Erythroplakia

- Has higher risk of malignancy (approximately 17 times)
- Decreased keratinization
- (M.C lower alveolar mucosa and gingivobuccal mucosa.

110. B. Tensor veli palatini

- Tongue Extrinsics: genioglossus, palatoglossus, styloglossus, hyoglossus muscles (innervated by hypoglossal nerve)
- Tongue Intrinsics: superior and inferior longitudinal, vertical, transverse layers (innervated by hypoglossal nerve)

- Palatal Muscles: musculus uvulae, levator veli palatini, tensor veli palatini, palatoglossal (anterior pillar), palatopharyngeus (posterior pillar), innervated by glossopharyngeal and vagus nerves except the tensor veli palatini which is innervated by CN V3

111. B. Foliate Papillae

- Fungiform Papillae: small red structures found at tip and edge of anterior 2/3 of tongue
- Foliate Papillae: located at the posterolateral tongue base
- Circumvallate Papillae: raised circular structures, arranged in V-shape at junction of anterior 2/3 and posterior 1/3 of tongue
- Filiform Papillae: distributed throughout tongue, bumpy appearance, does not participate in taste
- Sulcus Terminalis: groove between anterior and posterior tongue
- Foramen Cecum: central point of the sulcus terminalis (origin of thyroid gland)

112. B. CN IX

Afferent Taste Innervation

- Anterior Two-Thirds of the Tongue: taste receptors (fungiform and foliate papillae)—chorda tympani nerve — geniculate ganglia (taste fiber cell bodies) — nervus intermedius (CN VII) — nucleus solitarius
- Posterior One-Third of the Tongue: taste receptors (foliate and circumvallate papillae; posterior oropharynx, valleculae, and base of tongue)—CN IX — inferior petrosal ganglion — nucleus solitarius
- laryngeal surface of epiglottis—CN X —nucleus solitarius

113. C. Oral cavity

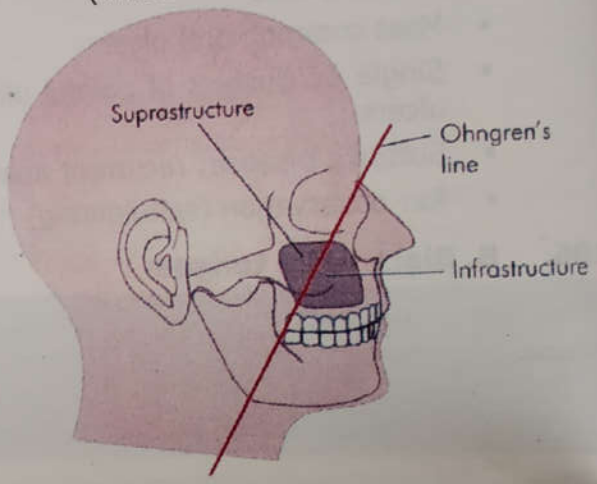
Oral Cancer

1. 30% of all head and neck cancers (most common head and neck site)
2. Oral cavity has the highest rate of second primaries (10–40%)
3. SSx: nonhealing ulcers, denture difficulties, dysphagia, odynophagia, trismus, halitosis, numbness in the lower teeth (suggests mandible involvement of the inferior alveolar nerve)
4. Squamous Cell Carcinoma (SSC): >90% of oral cancers

114. C. Medial canthus to angle of mandible.

Ohngren's Classification

- An imaginary plane is drawn extending between medial canthus of eye and the angle of mandible.
- Growths situated above this plane (suprastructural) have a poorer prognosis than those below it (infrastructural).



115. D. Hard Palate

- Alveolar Ridge
  - More common in edentulous and molar areas of the mandible.
- Hard Palate
  - Minor salivary gland tumors are common

116. A. Upper lips

- Lips:
  - Most common location of oral cancer
  - 90% on lower lip, 90% 5-year survival if <2 cm, 90% squamous cell carcinoma (Rules of 90's)
  - Basal cell carcinoma is more common on upper lip
  - Lower lip has bilateral and ipsilateral lymphatic drainage

into level I–III nodal groups and upper lip has ipsilateral lymphatic drainage into level I–III nodal groups (no contralateral drainage due to embryological fusion plates)
    - Poorer prognosis is associated with upper lip and commissure involvement
- Buccal Mucosa:
    - Common site near mandibular third molar (site of chewing tobacco), most common site for verrucous cancer

117 A. Eagle's syndrome

Eagle's syndrome

- Bilateral ossification of stylohyoid ligaments
- Eagle's syndrome is characterised by pain in tonsillar fossa and upper neck.
- Pain radiates of ipsilateral ear.
- There is aggravation of pain on swallowing.
- It is caused by calcification of stylohyoid ligament / elongation of styloid process.

118. A. Nasopharyngeal carcinoma

- "Nasopharynx is a centrally located structure with extensive submucosal capillary lymphatic plexus.
- Partly due to this extensive lymphatic existence, NPC has a propensity of lymph node involvement in its early stages.
- Clinical evident cervical lymph adenopathy is seen in more than 86% of the patients with nasopharyngeal carcinoma"

119. B. Bifurcation of trachea

- Retropharyngeal space: It lies behind the pharynx between the buccopharyngeal fascia covering pharyngeal constrictor muscles and the pre vertebral fascia.
- It extends from the base of skull to the bifurcation of trachea.
- The space is divided into two lateral compartments (spaces of Gillette) by a fibrous raphe.
- Each lateral space contains retropharyngeal nodes which usually disappear at 3-4 years of age.
- Parapharyngeal space communicates with the retropharyngeal space.
- Infection of retropharyngeal space can pass down behind the oesophagus into the mediastinum.

Pharynx – Questions

120. The pharynx, funnel-shaped tube, 15 cm long is widest:
a. Opposite skull base
b. Opposite styloid process
c. Opposite hyoid
d. Opposite thyroid

121. A 65 year old male presents with cervical lymphadenopathy with recurrent epistaxis. Most likely cause is
a. Angiofibroma
b. Ca Nasopharynx
c. Rhabdomyosarcoma
d. None

122. All of the following are true about juvenile angiofibroma except
a. Frog face deformity
b. Weber Fergusson's transmaxillary approach is ideal for angiofibroma limited to nose & nasopharynx
c. Flutamide can induce tumor shrinkage
d. Superior margin of sphenopalatine foramen is the most common site of origin

123. Trotters triad is seen in carcinoma of
a. Maxilla
b. Larynx
c. Nasopharynx
d. Ethmoid sinus

124. Most common site of tumor in the nasopharynx:
a. Eustachian tubes
b. Fossa of Rosenmüller
c. Base of tongue
d. Post cricoid space

125. An inner longitudinal layer of pharynx includes all except:
a. Stylopharyngeus
b. Palatopharyngeus
c. Salpingopharyngeus
d. Inferior constrictor

126. Interdigitating superior constrictor muscles that form a band at the posterior pharyngeal wall:
a. Passavant's Ridge
b. Rathke's Pouch Cyst
c. Sinus of Morgagni
d. Torus tubarius

127. Which of the structure crosses through sinus of morgagni:
a. Stapedius
b. Tensor veli palatini
c. Tensor tympani
d. Chordae tympani

128. Not a true statement regarding adenoids
a. Physiological enlargement continues upto 6 years of age
b. Adenoids do not have capsule
c. Adenoidectomy is contraindicated in submucous cleft palate
d. Digital palpation of adenoid tissue should be avoided before removal in adenoidectomy

129. Adenoids are prominent in children upto:
a. 4 yrs b. 6 yrs
c. 10 yrs d. 14 yrs

130. The lingual tonsil are found.
a. Tip of toungue
b. Near submandibular gland
c. Middle of the tongue
d. Pharyngeal tongue

131. Secondary haemorrhage after tonsillectomy is most commonly seen on?
a. 6 hours after surgery
b. 24 hours after surgery
c. 6 days after surgery
d. 14 days after surgery

120. c	121. b	122. b	123. c	124. b	125. d	126. a	127. c	128. d	129. b
130. d	131. c								

132. Most severe complication of maxillary sinus lavage and insufflation
a. Facial nerve injury
b. Air embolism
c. Epistaxis
d. Coagulopathy

133. The anterior boundary of the lateral wall of the oropharynx is formed by the:
a. Median glossoepiglottic fold
b. Lateral pharyngoepiglottic fold
c. Palatoglossal fold
d. Palatopharyngeal fold

134. The superior laryngeal nerve lies deep to a mucosal fold in the lateral wall of the:
a. Pyriform fossae
b. Postcricoid Area
c. Oropharynx
d. Base of tongue

135. The principal sensory and motor supply of the pharynx is by :
a. IX and X respectively
b. X and IX respectively
c. IX and XI respectively
d. IX and XII respectively

136. Most common source of infection of masticator space is:
a. 1st molar b. 2nd molar
c. 3rd molar d. 2nd premolar

137. Infection of post-styloid compartment of parapharyngeal space spares:
a. CN IX b. CN X
c. CN XI d. CN VII

138. Swelling between tonsillar area and superior constrictor muscle is knows as
a. Quinsy
b. Dental abscess
c. Parapharyngeal abscess
d. Retropharyngeal abscess

139. A post dental extraction patient presents with swelling in posterior one third of the sternocliedomastoid, the tonsil is pushed medially. Most likely diagnosis is
a. Retopharyngeal ascess
b. Parapharyngeal abscess
c. Ludwig angina
d. Vincent angina

140. Most common cause of acute retropharyngeal abscess in children is:
a. Adenoids b. Trauma
c. T.B d. Quinsy

141. 50 yrs old male presented with odynophagia, "hot potato" voice and stridor. On examination diffuse swelling over the posterior pharyngeal wall was seen. X-ray revealed increased retropharyngeal space. Most suspected diagnosis is:
a. Retropharyngeal abscess
b. Prevertebral abscess
c. Parapharyngeal abscess
d. Ludwig's Angina

142. All are true about Ludwig's angina except
a. Trismus is a feature
b. Tracheostomy may be required
c. Submandibular space infection
d. Staphylococcus aureus is the causative organism

143. Lymph nodes located in submental region belongs to:
a. Level IA
b. Level IB
c. Sublevels IIA
d. Level IIB

144. Tonsils of Gerlach are related with:
a. Lingual tonsil
b. Tubal tonsil
c. Faucial tonsil
d. Luschka's tonsil

145. Ascending pharyngeal artery suppling tonsils is a branch of:
a. Lingual artery
b. Facial artery
c. Tonsillar artery
d. External carotid artery

132. b	133. c	134. a	135. a	136. c	137. d	138. a	139. b	140. a	141. b
142. d	143. a	144. b	145. d						

146. Least common symptom of acute tonsillitis is:
a. Sore throat
b. Odynophagia
c. Cervical adenopathy
d. Trismus

147. Symptoms of acute tonsillitis with throat swab showing fusiform bacilli and spirochaetes is feature of:
a. Diphtheria
b. Vincent angina
c. Infectious Mononucleosis
d. Aphthous ulcers

148. Most common tonsillar malignancy in children is:
a. Mucoepidermoid Ca
b. Lymphoma
c. SCC
d. Adenocell carcinoma

149. Quinsy is collection of pus in the peritonsillar space b/t capsule of tonsil and:
a. Superior constrictor
b. Middle constrictor
c. Inferior constrictor
d. Stylohyoid

150. Space of the neck most often involved with head and neck infections is:
a. Submaxillary space
b. Submental space
c. Parapharyngeal space
d. Retropharyngeal space

151. Most common site of oropharynx malignancy is:
a. Soft Palate
b. Base of Tongue
c. Tonsil/Lateral Pharyngeal Wall
d. Posterior Pharyngeal Wall

152. Most common variety of oropharynx malignancy is:
a. Squamous Cell Carcinoma
b. Lymphoepitheliomas
c. Lymphomas
d. Sarcomas

153. Most common site of hypopharynx malignancy is:
a. Pyriform Sinus
b. Post cricoid space
c. Posterior pharyngeal wall
d. Base of tongue

154. Primary tumor of post cricoid space involving more than one subsite is included in:
a. T1 b. T2
c. T3 d. T4

155. Partial Laryngopharyngectomy may be considered for:
a. T1–T2 pyriform sinus cancer
b. T1–T2 posterior cricopharyngeal wall cancer
c. Postcricoid primaries
d. Cervical esophageal involvement

156. Space lying between cricopharyngeal and esophagus muscle is:
a. Killian's Triangle
b. Killian-Jamieson Space
c. Laimer-Haeckermann Space
d. None

146. d	147. b	148. b	149. a	150. c	151. c	152. a	153. a	154. b	155. a
156. b								

Pharynx – Explanations

120. C. Opposite hyoid.

Pharynx

Fibromuscular, funnel-shaped tube,15 cm long. The pharynx is widest (5 cm) opposite the hyoid bone and narrowest (1.5 cm) at its inferior end, where it is continuous with the esophagus posteriorly.

It extends from the base of the skull and the styloid process to the inferior border of the cricoid bone.

(1)Nasopharynx

- The nasopharynx is the portion of the pharynx bounded superiorly by the skull base and the sphenoid and laterally by the paired tori of the Eustachian tubes (1.25 cms behind IT),

121. B. Ca Nasopharynx

CA NASOPHARYNX

Clinical Features:

- Painless cervical lymphadenopathy : 60% (commonest àJugulodigastric)
- Epistaxis and nasorespiratory symptoms : 40%
- Audiological symptoms (Tinnitus, otalgia, Deafness) : 30%
- Neurological symptoms : 20% all cranial nerves except 1,2 and 7,8 can be involved (Most commonly: V, VI, IX, X)

122. B. Weber Fergusson's transmaxillary approach is ideal for angiofibroma limited to nose & nasopharynx

- Angiofibroma is the most common benign tumour of nasopharynx seen in adolescent males.
- It originates from sphenopalatine foramen. It's a highly vascular tumour.
- CECT scan shows Hollman Miller (= Antral) sign.
- Surgery is treatment of choice.
- Pre-op embolisation will reduce blood loss.
- Pre-op Estrogen, Flutamide (androgen antagonist) are helpful in reducing blood loss.
- Debulking or biopsy of this tumour is never done as it is a highly vascular tumour.

123. C. Nasopharynx

CA Nasopharynx

- Trotter's Triad:

1. U/L middle ear effusion and so conductive hearing loss
2. Pain in that ear
3. Paralysis of the soft palate (X nerve)

124. B. Fossa of Rosenmüller.

Fossa of Rosenmüller: slit-like region medial to the medial crura of the eustachian tube orifice, most common site of tumor in the nasopharynx. The foramen lacerum is situated above this. Because the foramen ovale, foramen spinosum,carotid canal, and jugular canal also lead from the nasopharynx, disease may spread from the nasopharynx to the interior of the skull

(2) Oropharynx, posterior to the oral cavity, between the palate and the hyoid bone

(3) Laryngopharynx, posterior to the larynx, from the hyoid bone to the inferior border of the cricoid cartilage.

125. D. Inferior constrictor.

The pharyngeal wall is composed of four layers:

(1) a mucosa :ciliated columnar epithelium in the nasopharynx, and a stratified columnar epithelium in the oropharynx and laryngopharynx;

(2) a fibrous layer, which forms the pharyngobasilar fascia and is attached superiorly to the skull;

(3) An inner longitudinal layer and outer circular layer of muscles contribute to the pharyngeal wall. Each layer is composed of three paired muscles.The stylopharyngeus, palatopharyngeus, and salpingopharyngeus make up the inner layer; the superior, middle, and inferior constrictor muscles make up the outer layer.
(4) loose connective tissue layer that forms the buccopharyngeal fascia.

126. A. Passavant's Ridge.

Passavant's Ridge: interdigitating superior constrictor muscles that form a band at the posterior pharyngeal wall during swallowing that abuts the soft palate

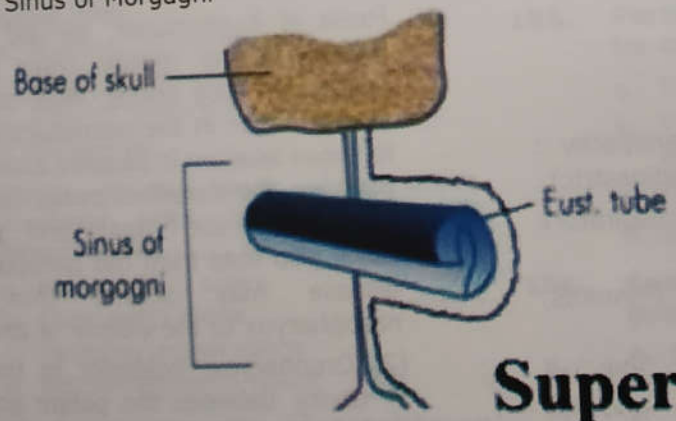
Rathke's Pouch Cyst

- Persistent craniopharyngeal canal from failure of the obliteration of Rathke's pouch (a diverticulum of ectoderm which invaginates to form the anterior lobe of the hypophysis and pars intermedius)
- Typically asymptomatic, smooth mass in nasopharynx, antibiotics with marsupialization or excision for infected lesions

The eustachian tubes pass laterally through the sinus of Morgagni, a defect located just superior to the upper edge of the superior constrictor muscle.
Posterosuperior to the opening of the eustachian tube is the torus tubarius (a cartilaginous lip) and a collection of lymphoid tissue (i.e., tubal tonsil).
Tornwaldt's bursa represents notochord remnant inferior to Rathke's pouch.

127. C. Tensor tympani

Sinus of Morgagni



Superior Pharyngeal Constrictor

Through it enters
(i) the eustachian tube
(ii) the levatoe veli palatini
(iii) tensor veli palatini and
(iv) ascending palatine artery-branch of the facial artery

128. D. Digital palpation of adenoid tissue should be avoided before removal in adenoidectomy

Adenoids: (Nasopharyngeal Tonsil)

Definition; Adenoids are lymphoid tissue located at the junction of nasopharyngeal roof and the posterior pharyngeal wall

Features:

1. Are lined by ciliated columnar epithelium
2. Have no capsule/crypts
3. Are present at birth not visible on X-ray in children under I month of age
4. Clinically seen by the 4th month
5. Visible radiographically in children more than 6 month of age
6. physiologically grow upto 6 years of age
7. Involution after puberty

- Before adenoidectomy, the adenoid mass should be palpated before surgery to confirm the diagnosis and to rule out any abnormal vessel overlying the adenoid mass
- Adenoidectomy is contraindicated in hemorrhagic disorders, cleft palate, bifid uvula, hypernasality.

129. B. 6 yrs.

- Although prominent in children upto 6 yrs,the adenoids atrophy at puberty and disappear in the 20.
- Tonsils increase in size between 1–3 years old (after exposure to antigens), peak between 3–7 years old, involute after puberty

130. D. Pharyngeal tongue

- The lingual tonsils are rounded masses of lymphatic tissue that cover the posterior region of the tongue.
- They are located on the dorsal surface at the base of the tongue. Their lymphatic tissue are dense and nodular, their surface is covered with stratified squamous epithelium which invaginates as a single crypt into each lingual tonsil.
- They are partially surrounded by connective tissue placing them in the group of Partially Encapsulated Lymphatic Organs, tonsils, the only one of its kind.

131. C. 6 days after surgery

HAEMORRHAGE AFTER TONSILLECTOMY

Haemorrhage following tonsillectomy can be of 3 types:

- Primary haemorrhage (Immediate haemorrhage)
  - Occurs during surgery.
- Reactionary haemorrhage (Early haemorrhage)
  - Occurs within 24 hours of surgery.
  - It is due to the presence of a clot which prevents the compressive action of superior constrictor muscle on the blood vessels.
  - It can also occur due to slipping of a ligature / dislodgement of clot.
- Secondary haemorrhage (Delayed haemorrhage)
  - Seen more than 24 hours after surgery.
  - Usually seen 5 to 10 days after surgery.
  - Occurs due to infection / premature separation of membrane.

132. B. Air embolism

- Antral lavage is a surgical procedure in which a cannula is inserted into the opening of the maxillary sinus via the inferior meatus to allow irrigation and drainage of the sinus.
- Venous air embolism has been known to be a major hazard during maxillary sinus lavage and insufflation

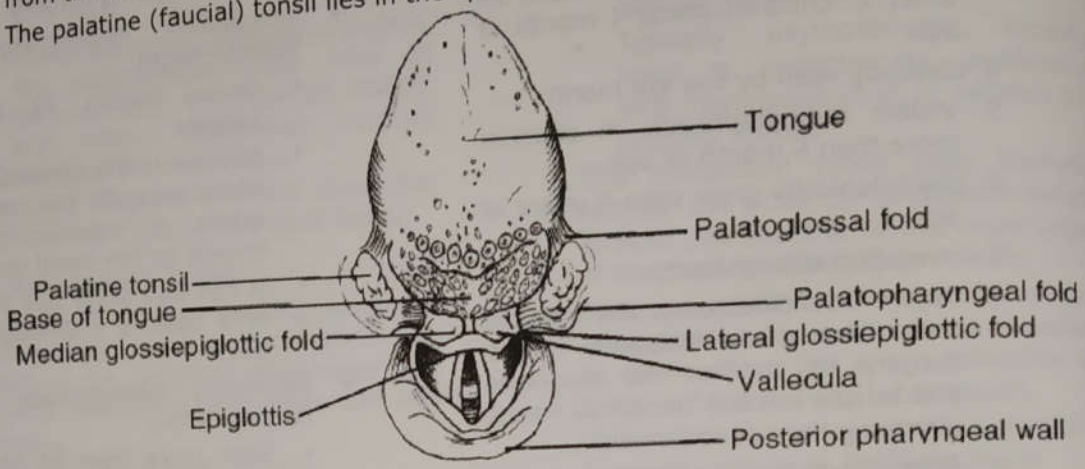
133. C. Palatoglossal fold.

Oropharynx

- The anterior wall of the oropharynx communicates with the buccal cavity.
- Below this, the glossoepiglottic area is formed by the base of the tongue. The valleculae, the area bounded by the epiglottis, base of the tongue, and pharyngoepiglottic folds, are situated at the lower part of this anterior wall.
- The median glossoepiglottic fold connects the base of the tongue to the lingual surface of the epiglottis and separates the valleculae into

right and left. Each vallecula is bounded laterally by the lateral pharyngoepiglottic fold.

- The anterior boundary of the lateral wall of the oropharynx is formed by the palatoglossal fold and underlying palatoglossus muscle. The palatopharyngeal fold passes downward from the lower edge of the soft palate and backward to the side wall of the pharynx.
- The palatine (faucial) tonsil lies in the space between these two folds (tonsillar fossa).



134. A. Pyriform fossae

Laryngopharynx

Pyriform fossae

- Situated on each side of the larynx
- Bounded medially by the lateral surface of the aryepiglottic fold, the arytenoid cartilage, and the cricoid cartilage.
- They are bounded laterally by the thyroid cartilage.
- The superior laryngeal nerve lies deep to a mucosal fold in the lateral wall of the pyriform fossae

Postcricoid Area

- The posterior wall of the laryngopharynx, which extends from the level of the floor of the valleculae to the level of the cricoarytenoid joint, is formed by the constrictor muscles and overlying mucous membrane.
- Most common site of plummer-vinson syndrome.

135. A. IX and X respectively

- The pharyngeal branches of IX and X constitute the principal sensory and motor supply of the pharynx respectively. The maxillary division of V supplies the sensory innervation of the nasopharynx.

136. C. 3rd molar

Masticator Space

Compartments

1. Masseteric: space between masseter muscle and ramus of the mandible
2. Pterygoid: space between pterygoid muscles and ramus of the mandible
3. Superficial Temporal: space between superficial temporal fascia and temporalis muscle
4. Deep Temporal: space between temporal fascia and temporal bone

- Contents: muscles of mastication, internal maxillary artery, mandibular nerve
- Source of Infections: molars (third molar most common)
- SSx: edema over posterior ramus, trismus
- Complications: osteomyelitis of the mandible, extension into neck spaces
- Rx: incision and drainage procedure, antibiotics

137. D. CN VII

Parapharyngeal Space (Lateral Pharyngeal Space, Pharyngomaxillary Space)

- Boundaries: cone-shaped with base

at base of skull and apex at lesser cornu of hyoid bone.

- The parapharyngeal space is divided by the styloid process and the muscles arising from it (stylohyoid, stylopharyngeus, styloglossus) into a prestyloid and poststyloid space.

Prestyloid: contains internal maxillary artery; fat; inferior alveolar, lingual, and auriculotemporal nerves

Poststyloid: neurovascular bundle (carotid artery, internal jugular vein, sympathetic chain, CN IX, X, and XI)

- Source of Infections: odontogenic, tonsils, pharynx, nasopharynx, and parotid gland

The facial nerve (CN VII) has only a brief course through the poststyloid space as it exits the skull via the stylomastoid foramen.

138. A. Quinsy

- Quinsy otherwise also known as peritonsillar abscess is a collection of pus in the peritonsillar space between the superior constrictor and capsule of the tonsil. It is usually unilateral, and commonly affects adolescent males. Pathophysiology: Infection usually starts in the crypta magna from where it spreads beyond the confines of the capsule causing peritonsillitis initially, and peritonsillar abscess later.
- Another proposed mechanism is necrosis and pus formation in the capsular area, which then obstructs the weber glands, which then swell, and the abscess forms.

139. B. Parapharyngeal abscess

- A parapharyngeal abscess is a deep neck abscess treated with antibiotics and surgical drainage.
- The parapharyngeal (pharyngomaxillary) space is lateral to the superior pharyngeal constrictor and medial to the masseter muscle. This space connects to every other major fascial neck space and is divided into anterior and posterior compartments by the styloid process.
- The posterior compartment contains the carotid artery, internal jugular vein, and numerous nerves. Infections in the parapharyngeal space usually originate in the tonsils or pharynx, although local spread from odontogenic sources and lymph nodes may occur.
- Abscess swelling can compromise the airway. Posterior space abscess can erode into the carotid artery or cause septic thrombophlebitis of the internal jugular vein (Lemierre syndrome).

140. A. Adenoids

Retropharyngeal Space

Boundaries: between pharyngeal constrictors muscles and alar fascia, extends from skull base to mediastinum

Acute : Children------ Adenoids. Adults--------Trauma

Chronic: TB

SSx: odynophagia, "hot potato" voice, drooling, stiff neck, stridor, spiking fevers

141. B. Prevertebral abscess

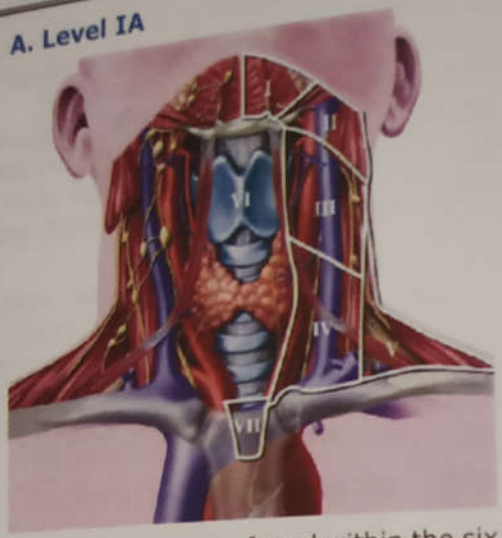
Prevertebral Space

- Boundaries: deep to prevertebral fascia, extends from skull base to coccyx
- Contents: longus colli muscle
- SSx: same as retropharyngeal and danger space infections
- Pott's abscess: tuberculous osteomyelitis

142. D. Staphylococcus aureus is the causative organism

- Ludwig's angina is infection of floor of mouth= submandibular space caused due to dental infections. The bacteriology is mixed- streptococci and anaerobes.
- Patient has chin swelling, trismus and occasionally respiratory distress.
- The treatment is by incision and drainage externally deeper to mylohyoid muscle.
- Occasionally, tracheostomy may be needed .

143. A. Level IA



Lymph node groups found within the six neck levels and the six sublevels

- Submental (sublevel IA)
- Submandibular (sublevel IB)
- Upper jugular (includes sublevels IIA and IIB)
- Middle jugular (level III)
- Lower jugular (level IV)
- Posterior triangle group (includes sublevels VA and VB)
- Anterior compartment group (level VI)

144. B. Tubal tonsil..

- Waldeyer's Ring: circle of lymphoid tissue consisting of palatine (faucea-l) tonsils, pharyngeal tonsils (adenoids), lingual tonsils, and tubal tonsils of Gerlach (near fossa of Rosenmüller)

Tonsils

- 12- 15 crypts
- Non keratinizing stratified squamous epitheum

145. D. External carotid artery..

Tonsils

Arterial Supply

1. Lingual artery → dorsal lingual branch (lower pole)
2. Facial artery → ascending palatine artery and tonsillar artery (main supply, lower pole)
3. External carotid artery → ascending pharyngeal artery (upper pole)
4. Internal maxillary artery → greater palatine artery and descending palatine artery (upper pole)

146. D. Trismus.

Tonsillitis

Pathogens: most commonly Group A β-hemolytic Streptococcus (GABHS).

Symptoms : sore throat, fever, chills, odynophagia, trismus, cervical adenopathy, halitosis, erythema of tonsils and faucial pillars

147. B. Vincent angina

Diphtheria	Milder form in nonimmunized children >6 years old, gray-green plaques, membranous, friable exudate on tonsils ,bleed on touch
Vincent angina	Less intensity throat swab showing fusiform bacilli and spirochaetes
Infectious Mononucleosis	High grade fever, lymphadenopathy (posterior triangle),associated hepatosplenomegaly with monospot test, Paul-Bunnel test (heterophil antibodies in serum), 80–90% mononuclear and 10% atypical lymphocytes on smear.
Agranulocytosis	Symptoms with total leucocyte < 2000/cu mm
Leukaemia	Symptoms with total leucocyte > 100000/cu mm

148. B. Lymphoma.

Tonsillar Malignancy

- Children --- Lymphoma
- Adults --- Mucoepidermoid Ca

149. A. Superior constrictor

Quinsy

- Collection of pus in the peritonsillar space(b/t capsule of tonsil and superior constrictor)
- Hot potato voice with ipsilateral earache(IX) nerve and trismus.
- Incision at maximum bulge.

150. C. Parapharyngeal space

- Because of its connections and location, the parapharyngeal space is the space of the neck most often involved with head and neck infections.

151. C. Tonsil/Lateral Pharyngeal Wall.

Oropharyngeal Cancer

- Tonsil/Lateral Pharyngeal Wall: most common site of oropharynx, may present as an exophytic mass or an ulcerative lesion.
- Soft Palate: rare, since more visible than other sites typically found at early stages'

152. A. Squamous Cell Carcinoma

- Squamous Cell Carcinoma (SSC): >95% of oropharyngeal cancer
- Lymphoepitheliomas: subgroup of poorly differentiated carcinoma, may present in the tonsil, exophytic, radiosensitive
- Lymphomas: 10–15% of base of tongue and tonsillar cancers
- Other Types: Sarcomas, Salivary Gland Malignancies, metastatic disease

153. A. Pyriform Sinus

Pyriform Sinus:

- Most common site for hypopharyngeal cancer
- Apical primaries are associated with a worse prognosis

154. B. T2

Classification and Management

Staging (based on the AJCC Staging, 1997)

- T1: primary tumor limited to one subsite and <2 cm
- T2: primary tumor involves more than one subsite or >2 cm
- T3: primary tumor >4 cm or vocal fold fixation
- T4: primary tumor invades adjacent structures (eg, thyroid cartilage,carotid artery, soft tissues of the neck, thyroid, esophagus)

Pathology

Squamous Cell Carcinoma (SSC): poorly differentiated (most common)

- Other Types: adenomas, salivary gland malignancies, metastatic disease

155. A. T1–T2 pyriform sinus cancer

Surgical Management

Partial Laryngopharyngectomy: laryngeal conservation procedure that may be considered for early T1–T2 pyriform sinus cancer if tumor involves primarily the medial wall and >1.5 cm clear from the apex

Combined Suprahyoid and Lateral Pharyngectomy: may be considered for early T1–T2 posterior cricopharyngeal wall cancer; includes removal of lateral third of the thyroid cartilage

Total Laryngectomy with Partial Pharyngectomy: typically required for most postcricoid primaries, advanced hypopharyngeal disease, recurrence, and radiation failures

Esophagectomy: indicated for cervical esophageal involvement

156. B. Killian-Jamieson Space

Upper Esophageal/Hypopharyngeal Areas of Weakness

- Killian's Triangle: inferior to posterior cricopharyngeal muscle, superior to cricothyroid muscles, below raphae of inferior constrictors
- Killian-Jamieson Space: laterally, between cricopharyngeal and esophagus muscle
- Laimer-Haeckermann Space: between cricopharyngeus superiorly and circular fibers inferiorly

Larynx – Questions

157. Respiratory primordium appears as an outgrowth (laryngotracheal groove) from the ventral wall of the foregut at:

a. Fourth week
b. Fifth week
c. Sixth week
d. Eighth week

158. Greater horn and lower portion of the hyoid bone develops from :

a. II branchial Arch
b. III branchial Arch
c. IV branchial Arch
d. V/VI branchial Arch

159. Only vocal fold abductor is:

a. Posterior Cricoarytenoid
b. Lateral Cricoarytenoid
c. Thyroarytenoid
d. Cricothyroid

160. All of the following are true of the vocal folds of the larynx except

a. They are covered with a mucosa that is innervated by branches of the vagus nerve
b. They are abducted during respiration by contraction of the posterior cricoarytenoid muscles
c. They are adducted during swallowing by contraction of the lateral cricoarytenoid muscles
d. They are made more tense by contraction of the thyroarytenoid muscles

161. Chief pitch-changing muscle is:

a. Posterior Cricoarytenoid
b. Lateral Cricoarytenoid
c. Thyroarytenoid
d. Cricothyroid

162. Cartilage present in thyrohyoid ligament, may be mistaken on x-ray as a foreign body when calcified is:

a. Cricoid
b. Trieceous Cartilage
c. Corniculate Cartilage
d. Cuneiform Cartilage

163. Vocal ligament is formed by:

a. Squamous epithelium and superficial layer of the lamina propria
b. Intermediate and deep lamina propria
c. Superficial and intermediate lamina propria
d. Superficial and deep lamina propria

164. Superior margin of the infant's larynx is at the level of:

a. Cervical spine C1
b. Cervical spine C2
c. Cervical spine C3
d. Cervical spine C6

165. Incorrect statement regarding laryngeal innervation is:

a. Internal Branch of the superior laryngeal nerve innervates the laryngeal mucosa above the glottis
b. Muscles are supplied by recurrent laryngeal nerve except cricothyroid which is supplied by external branch of superior laryngeal nerve
c. Laryngospasm is mediated by the recurrent laryngeal nerve
d. Recurrent laryngeal nerve innervates the laryngeal mucosa inferior to the glottis

166. Functions of videostroboscopy includes all except:

a. Examine vocal fold mucosa for general health
b. Vocal fold anatomical defects
c. Vocal fold biomechanical disturbances
d. Evaluate the location, extent, or compression of the stenosis

157. a	158. b	159. a	160. d	161. d	162. b	163. b	164. a	165. c	166. a

DAMS

167. Up gl fol
a.
b.
c.
d.

168. Vo
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b.
c.
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169. Mo of
a.
b.
c.
d.

170. Po lar
a.
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d.

171. Wh of
a.
b.
c.

d.

172. Typ
a.
b.
c.
d.

173. Id cry str wa of
a.
b.

167. d	
177. d	

167. Upper airway obstruction at glottic region presents as all of the following except:
a. Biphasic stridor
b. Inspiratory stridor
c. Hoarseness
d. Feeding problems

168. Vocal cord is lined by:
a. Stratified columnar epithelium
b. Pseudociliated columnar epithelium
c. Stratified squamous epithelium
d. Cuboidal epithelium

169. Most common congenital anomaly of larynx :
a. Laryngeal web
b. Laryngomalacia
c. Laryngeal stenosis
d. Vocal and palsy

170. Position of vocal cord in recurrent laryngeal nerve paralysis is
a. Gentle abduction
b. Paramedian
c. Intermediate
d. Full abduction

171. Which one of the following lesions of vocal cord is dangerous to life :
a. Bilateral adductor paralysis
b. Bilateral abductor paralysis
c. Combined paralysis of left side superior and recurrent laryngeal nerve
d. Superior laryngeal nerve paralysis

172. Type I thyroplasty is for:
a. Vocal cord medialization
b. Vocal cord lateralization
c. Vocal cord shortening
d. Vocal cord lengthening

173. 1day old child presented with weak cry at birth, aphonia and inspiratory stridor. Incomplete recanalization was considered.Most common site of defect would be at:
a. Supraglottic
b. Glottic
c. Subglottic
d. Hypopharynx

174. A child born with 80 % subglottic stenosis should be graded as:
a. Grades I b. Grades II
c. Grades III d. Grades IV

175. Endoscopic management (CO2 or KTP laser excision with dilation) for congenital subglottic stenosis is considered for:
a. Grades I and II
b. Grades I,II and III
c. Only Grades I
d. Grades IV

176. Most common laryngeal anomaly is:
a. Laryngomalacia
b. Subglottic stenosis
c. Congenital Webs
d. Vascular Rings

177. 2 wks old presented with intermittent inspiratory stridor that improves in prone position; worse with feeding and hoarse voice; diagnosis of laryngomalacia was made; which of the given symptoms does not favour the diagnosis:
a. Intermittent inspiratory stridor
b. Stridor that improves in prone position
c. Stridor that worsen with feeding
d. Hoarse voice

178. Most common vascular anomaly to cause stridor is:
a. Pulmonary Artery Sling
b. Retro-Esophageal Right Subclavian Artery
c. Right Aortic Arch
d. Double Aortic Arch

179. Most common vascular anomaly to compress aerodigestive tract is:
a. Pulmonary Artery Sling
b. Retro-Esophageal Right Subclavian Artery
c. Right Aortic Arch
d. Double Aortic Arch

167. d	168. c	169. b	170. b	171. b	172. a	173. c	174. b	175. a	176. a
177. d	178. d	179. b							

180. A 40 yr old male teacher presents with complains of hoarseness, vocal fatigue & pain in neck on prolonged phonation. Direct laryngoscopy shows bilateral pin head size swelling on Ant.1/3 & post 2/3 junction of vocal cord. What could be the probable diagnosis?

a. Vocal polyp
b. Vocal nodule
c. Acute laryngitis
d. Acute pharyngitis

181. All are true of TB larynx except:

a. Mouse nibbled appearance of vocal cord.
b. Turban epiglottis
c. Contact ulcer
d. Posterior part of larynx affected more than anterior part

182. Most common virus causing Acute Viral Laryngitis is:

a. Rhinovirus
b. Parainfluenza
c. Respiratory syncytial virus
d. Influenza virus

183. Most common organism causing Adult Supraglottitis is:

a. Rhinovirus
b. Parainfluenza
c. Respiratory syncytial virus
d. Streptococcus

184. Feature suggesting acute epiglottitis includes:

a. Graudual in onset
b. Barky cough
c. High grade fever
d. Steeple sign on radiograph

185. Which virus is the leading cause of the croup syndrome in young children and, when infecting mammalian cells in culture, will hemabsorb red blood cells?

a. Group B coxsackievirus
b. Parainfluenza virus
c. Adenovirus
d. Rhinovirus

186. Rajesh, a 7-month-old child, presents with failure of gaining weight and noisy breathing which becomes worse when the child cries. Laryngoscopy shows a reddish mass in subglottis. Which of the following is not a part of treatment modality in this patient?

a. Radiation
b. Steroids
c. Tracheostomy
d. Carbon dioxide laser treatment

187. A patient presents with fever, sore throat and difficulty to swallow. His radiograph is given below. What is the most likely diagnosis?

a. TB larynx
b. Croup
c. Acute Epiglottitis
d. Laryngomalacia

188. Turban Shaped Epiglottis is seen in

a. Acute laryngitis
b. Allergic laryngitis
c. Laryngeal tuberculosis
d. Carcinoma larynx

189. Gold standard test for laryngopharyngeal reflux is?

a. Esophageal motility study
b. Barium swallow
c. 24 hour double probe pH monitoring
d. Esophageal biopsy

180. b	181. c	182. a	183. d	184. c	185. b	186. a	187. c	188. c	189. c

190. All are true about atrophic laryngitis except

a. More common in females
b. Stridor with respiratory difficulty is the chief complaint
c. Atrophy of laryngeal mucosa and crust formation is seen
d. Oral glycerol spray is helpful

191. Kashima Operation is done for

a. Bilateral adductor palsy
b. Bilateral abductor palsy
c. Phonaesthenia
d. Laryngeal paillomatosis

192. In a patient of acute epiglottitis, all of the following are part of management except

a. Intubation to secure the airway
b. Steroids to decrease oedema
c. Antibiotics to control infection
d. Repeat direct laryngoscopy every hour to assess laryngeal oedema

193. Vocal cord lesions: all are true except

a. Early vocal cord nodules are managed with speech therapy
b. Pachydermia laryngis is a premalignant condition
c. Reinke's oedema is best managed with decortication of vocal cords
d. Co2 laser is very useful in management of juvenile papilloma of larynx

194. A 52 year old female patient underwent total thyroidectomy. While surgery, both side superior laryngeal nerves got damaged. What are the expected post operative symptoms of patient?

a. Poor quality of voice & aspiration
b. Respiratory distress & aspiration
c. Respiratory distress with poor quality of voice
d. Respiratory distress with normal voice

195. Nocturnal stridor and respiratory distress with normal head and neck exam favours the diagnosis of:

a. Acute Laryngotracheobronchitis
b. Acute Supraglottitis
c. Acute Spasmodic Laryngitis
d. Acute Epiglottitis

196. Most common site of involvement of TB Laryngitis is:

a. Posterior interarytenoids
b. Laryngeal surface of epiglottis
c. Lingual surface of epiglottis
d. Vocal folds

197. Pseudoepitheliomatous hyperplasia of the larynx is a feature of:

a. Syphilitic Laryngitis
b. Scleroma of the Larynx
c. TB Laryngitis
d. Leprosy (Hansen's Disease)

198. Most common site of laryngeal papillomatosis is

a. Anterior commissure
b. Posterior commissure
c. Subglottis
d. Supraglottis

199. "Juvenile Recurrent Respiratory Papillomatosis" is characterized by:

a. Multiple sites of involvement, recurrent, may resolve spontaneously
b. Multiple sites of involvement, recurrence less common, may resolve spontaneously
c. Single sites of involvement, recurrent, may resolve spontaneously
d. Single sites of involvement, recurrence less common, may resolve spontaneously

200. A 12 year-old patient presented with bleeding from ear, pain, tinnitus and increasing deafness. Examination revealed red swelling/mass behind the intact tympanic membrane that blanches on pressure with pneumatic speculum. Treatments for her include all except:

a. Preoperative embolisation
b. Radiotherapy
c. Surgery
d. Interferons

190. b	191. a	192. d	193. b	194. a	195. c	196. a	197. b	198. a	199. a
200. d									

201. Recurrent respiratory papillomatosis is treated locally by

a. Acyclovir b. Cidofovir
c. Zinc d. Ranitidine

202. A patient is suffering from bilateral abductor spasmodic dysphonia. What type of voice is expected in this patient?

a. Breathy voice
b. Strangulated voice
c. Hot potato voice
d. Aphonia

203. Androphonia can be corrected by doing:

a. Type I Thyroplasty
b. Type 2 Thyroplasty
c. Type 3 Thyroplasty
d. Type 4 Thyroplasty

204. A tracheostomized patient, with portex tracheostomy tube, in the ward, developed sudden complete blockage of the tube. What will be the best next step for the management?

a. Immediate removal of the tracheostomy tube
b. Suction of tube with sodium bicarbonate
c. Suction of tube with saline
d. Jet ventilation

205. Dead space is reduced in tracheotomy:

a. 15%
b. 30 - 50%
c. 10%
d. 20%

206. Microlaryngoscopy is usually done with an objective lens with focal length of:

a. 200 mm b. 400 mm
c. 100 mm d. 300 mm

207. Most common cartilage involved in Chondromas is:

a. Thyroid b. Cricoid
c. Arytenoid d. Epiglottis

208. Tumour arising from schwann cells in posterior aspect of true vocal fold is:

a. Chondromas
b. Granular Cell Tumor
c. Lymphangiomas
d. Hemangioma

209. Most common site involved in sarcoidosis is:

a. Trachea
b. Glottic
c. Subglottic
d. Epiglottis

210. Most common site involved in wegener's granulomatosis is:

a. Supraglottic b. Glottic
c. Subglottic d. Epiglottis

211. Joint most commonly involved in rheumatoid arthritis is:

a. Cricoarytenoid joint
b. Thyroarytenoid joint
c. Cricothyroid joint
d. Interarytenoid region

212. Incorrect statement regarding reinke's space edema is:

a. Superficial layer of the lamina propria is involved
b. Hypothyroidism may be associated.
c. Increased risk of laryngeal cancer
d. Antireflux medications should be given trial

213. Laryngeal ventricle protruding between true and false vocal folds is called:

a. Vocal Fold Cyst
b. Mucus-Retention Cyst
c. Ventricular Prolapse
d. Laryngocele

214. Air filled dilation of the appendix of the ventricle, communicating with laryngeal lumen:

a. Vocal Fold Cyst
b. Mucus-Retention Cyst
c. Ventricular Prolapse
d. Laryngocele

201. b	202. a	203. d	204. a	205. b	206. b	207. b	208. b	209. d	210. c
211. a	212. a	213. c	214. d						

215. Patient of presbylaryngis can present with all of the following symptoms except:
a. Hoarse-breathy voice
b. Lower pitch
c. Voice tremors
d. Voice fatigue

216. 52 yrs old male operated for hernia presented with change in voice after 2 days of operation.On indirect laryngeoscopy swelling on medial aspects of arytenoids was seen;Diagnosis is:
a. Contact Ulcers
b. Vocal Fold Granulomas
c. Ventricular Prolapse
d. Laryngocele

217. Bilateral inflammatory tissue at junction of anterior and middle third of vocal fold:
a. Contact Ulcers
b. Vocal Fold Granulomas
c. Vocal nodules
d. Vocal polyps

218. Unilateral translucent, broad-based vocal fold lesion at junction of middle and anterior vocal folds at free edge is:
a. Contact Ulcers
b. Vocal Fold Granulomas
c. Vocal nodules
d. Vocal polyps

219. During strong whisper position of vocal cords is:
a. 1.5 mm from midline
b. 3.5mm from midline
c. 7 mm from midline
d. 9.5 mm from midline

220. Lateralisation of vocal cords includes all except:
a. Cordectomy
b. Nerve muscle implant
c. Injection of Teflon
d. Arytenoidectomy

221. Medializing vocal fold by inward lateral compression with an implant is:
a. Thyroplasty Type I
b. Thyroplasty Type II
c. Thyroplasty Type III
d. Thyroplasty Type IV

222. The narrowest portion of an infant's upper airway is:
a. Carina
b. Glottic
c. Subglottic space
d. Supra glottic

223. Gutzmann's pressure test is related with:
a. Puberphonia
b. Phonasthenia
c. Conversion Disorders
d. Plica Ventricularis

224. Faulty use of false vocal folds leads to:
a. Puberphonia
b. Phonasthenia
c. Conversion Disorders
d. Plica Ventricularis

225. Tracheotomy was done in a old male child diagnosed as case of congenital subglottis stenosis. As a ENT surgeon you advice the parents of child for regular endoscope every:
a. 1 months b. 2 months
c. 3 months d. 6 months

226. Pre-epiglottic Space is bounded by all of the following except:
a. Hyoid bone
b. Thyrohyoid membrane
c. Hyoepiglottic ligament
d. Conus elasticus

227. Most common site of supraglottic Ca is:
a. Infrahyoid epiglottis
b. Suprahyoid epiglottis
c. Aryepiglottic fold
d. False cords

228. Hoarseness, aspiration, dysphagia and odynophagia are feature of:
a. Supraglottis b. Glottis
c. Subglottis d. All

215. b	216. b	217. c	218. d	219. a	220. c	221. a	222. c	223. a	224. d
225. c	226. d	227. a	228. b						

229. Airway obstruction (biphasic stridor), hoarseness, dysphagia, odynophagia are feature of:

a. Supraglottis b. Glottis
c. Subglottis d. All

230. 60 yrs old male presented with insidious dysphagia, referred otalgia and weight loss. Indirect laryngoscopy revealed smooth surface growth involving epiglottic and left aryepiglottic fold with left vocal cord fixed. Direct laryngoscopy and biopsy confirmed the diagnosis of squamous cell carcinoma.C.T scan revealed the invasion of preepiglottic space and para-glottic space. Clinically the patient is suffering from:

a. Supraglottis Carcinoma Stage T_1
b. Supraglottis Carcinoma Stage T_3
c. Supraglottis Carcinoma Stage T_4a
d. Supraglottis Carcinoma Stage T_4b

231. General contraindications for partial laryngectomies includes all except:

a. Fixed cords
b. Cartilage invasion
c. Supraglottic extension
d. Significant oropharyngeal extension

232. "T1 or T2 (limited T3) supraglottic tumors with good pulmonary function tests" is an indication for :

a. Cordectomy via Laryngofissure
b. Supraglottic Laryngectomy
c. Vertical Partial Laryngectomy
d. Extended Hemilaryngectomy

233. Staging of glottic carcinoma of larynx with fixation of vocal cords is:

a. T1 b. T2
c. T3 d. T4

234. All are true about tracheostomy tube except

a. Consists of two metallic tubes
b. Tubes are made up of silver alloy and titanium
c. Metal tubes are ideally changed every 3 days
d. Cuffed tubes are used for IPPV

235. A patient with carcinoma larynx with the involvement of anterior commissure and right vocal cord developed perichondritis of thyroid cartilage. What will be the best treatment for this patient?

a. He should be given radical radiotherapy as this can cure early tumors
b. He should be treated with combination of chemotherapy and radiotherapy
c. He should first receive radiotherapy, and if residual tumor is present, then should undergo laryngectomy
d. He should first undergo laryngectomy and then postoperative radiotherapy

236. Suprahyoid laryngeal malignancy drain into

a. Pre tracheal
b. Upper jugular
c. Sub mental
d. Sub mandibular

237. Which of the following structure is not removed during "Vertical Partial Laryngectomy"

a. Ventricle b. Paraglottic space
c. Vocal cord d. Arytenoid

238. The ideal treatment for T1N0M0 glottic cancer larynx is

a. Radiotherapy
b. Laser cordectomy
c. Total laryngectomy
d. Decortication of vocal cord

239. The statement not true about Laryngeal Web is

a. Congenital anamoly
b. Cry is normal in the patient
c. CO2 Laser is helpful in its management
d. Mc Naught Keel is used to prevent the reformation of web after surgery

229. c	230. b	231. c	232. b	233. c	234. c	235. d	236. b	237. d	238. b
239. b									

240. Study the given prosthesis, it is being used for:

a. Preventing Aspiration
b. Voice
c. Respiration
d. None of the above

241. Elliptical space between the cords is seen in cases of weakness of:

a. Thyroarytenoid
b. Interarytenoid
c. Both thyroarytenoid and interarytenoid
d. None

240. b | **241. a**

Larynx – Explanations

157. A. Fourth week

- At the fourth week of development the respiratory primordium appears as an outgrowth (laryngotracheal groove) from the ventral wall of the foregut (primitive pharynx)

158. B. III branchial Arch

Branchial Arch Derivatives

- II: lesser horn and upper portion of the hyoid bone
- III: greater horn and lower portion of the hyoid bone
- IV: supraglottic structures (thyroid cartilage), superior laryngeal nerve (SLN) structures (cricothyroid muscle and pharyngeal constrictors)
- V/VI: glottic/subglottic structures (cricoid, cuneiform, corniculate, and arytenoid cartilages) and recurrent laryngeal nerve (RLN) structures (all intrinsic laryngeal muscles except the cricothyroid)

159. A. Posterior Cricoarytenoid

Laryngeal Neuromuscular Anatomy

- Posterior Cricoarytenoid (PCA): (RLN) only vocal fold ABductor
- Lateral Cricoarytenoid (LCA): (RLN) vocal fold Adduction

160. D. Tympanostomy

- They are made more tense by contraction of the thyroarytenoid muscles
- Abductors- Posterior cricoarytenoids.
- Adductors-lateral cricoarytenoids, the Thyrarytenoids, and the interarytenoids.
- The cricothyroid tenses the folds and the thyroarytenoids slacken the folds.
- The sensory innervation of the mucosa by the vagus nerve serves as the afferent limb of the cough reflex.
- The vocal folds are widely abducted during respiration, tightly adducted during deglutition, and are situated close to one another during phonation.
- Paralysis or paresis of laryngeal muscles results in hoarseness

161. D. Cricothyroid

Laryngeal Neuromuscular Anatomy

- Thyroarytenoid (TA): (RLN) increases vocal fold tension, vocal fold ADduction, the medial aspect of the TA is called the vocalis
- Cricothyroid: (external branch of SLN) ADduction, increases vocal fold tension and length (chief pitch-changing muscle)

162. B Trieceous Cartilage

Trieceous Cartilage: sometimes found in thyrohyoid ligament, may be mistaken on x-ray as a foreign body when calcified

Laryngeal Joints

- Cricothyroid Joints: synovial, rocks (hinge)
- Cricoarytenoid Joints: synovial, rocking motion (anteromedially for vocal fold ADduction and posterolaterally for vocal fold ABduction)

163. B. Intermediate and deep lamina propria

Vocal Fold Layers (from superficial to deep)

- Squamous Epithelium: stratified, nonkeratinizing
- Superficial Lamina Propria (SLP, Reinke's Space): loose fibrous matrix (few fibroblasts), gelatinous consistency permits fluency of vocal fold vibration (mucosal wave)
- Intermediate Lamina Propria: elastin (some fibroblasts)

- Deep Lamina Propria: fibroblasts and collagen (dense)
- Thyroarytenoid Muscle Complex: thyromuscular bundle (thyroarytenoid muscle) and thyrovocalis bundle (vocalis muscle)

164. A. Cervical spine C1

Pediatric Airway Anatomy

- The epiglottis at birth is omega (Ω) shaped (soft)
- Superior margin of the infant's larynx is at the level of cervical spine C1 and the cricoid cartilage at C3-4; as the larynx descends the cricoid cartilage aligns to C6–7 by puberty

165. C. Laryngospasm is mediated by the recurrent laryngeal nerve.

Laryngeal Sensory Innervation

- Laryngospasm: exaggerated Adduction reflex caused by laryngeal irritation (reflux, foreign bodies, extubation, mucus); may be driven by the CNS, mediated by the superior laryngeal nerve

166. A. Cervical spine C1

Videostroboscopy:

- Examine vocal fold mucosa for general health (coloration, thickness, atrophy, etc)
- Vocal fold anatomical defects (masses, glottal chinks, etc)
- Vocal fold biomechanical disturbances (immobility or hypomobility, tremors, spasmodic or muscle-tension isorders)
- Vocal fold mucosal wave dynamics

167. D. Feeding problems

DESCRIPTION OF UPPER AIRWAY SOUND BY SITE OF OBSTRUCTION

- Nasopharyngeal:(snoring), no cough
- Oropharynx: gurgly
- Supraglottic: inspiratory stridor, throaty voice, feeding problems
- Glottic: inspiratory or biphasic stridor, hoarseness
- Subglottic: husky voice, biphasic stridor, barking cough
- Tracheobronchial: expiratory stridor, wheezing, suprasternal retraction indicate obstruction above thoracic inlet

168. C. Stratified squamous epithelium

- Medial to lateral the membranous vocal fold is made up of squamous epithelium, Reinke's space (superficial layer of lamina propria) which is a potential space, vocal ligament (consisting of elastin & collagen fibres), thyroarytenoid muscle.
- Perichondrium & thyroid cartilage provide the lateral boundary.

169. B. Laryngomalacia

- Laryngomalacia is the most frequent cause of stridor or noisy breathing in infants. It occurs as a result of a floppy portion of the larynx that has not yet developed the strength to provide rigid support of the airway.
- During inspiration, negative pressure is created through the larynx, which results in a collapse of these structures into the airway and a narrower breathing passage. The partial obstruction is the source of the noise with breathing.
- The hallmark sign includes a high pitched or squeaky intermittent sound noted mostly on inspiration. It is usually more prominent when the infant is lying on his/her back, crying, feeding, excited or has a cold. This is usually first noticed in the first few weeks of life. It may worsen over the first few months and become louder.
- This is because as the baby grows, the inspiratory force is greater, which causes greater collapse of the laryngeal structures into the airway. This is usually at it's worst at 3-6 months and then gradually improves as the rigidity of the cartilage improves. Most children are symptom free by 12 months.

170. B Paramedian

Position of cords	Location of V.C from midline	Healthy	Diseased
Median	Midline	Phonation	RLN palsy
Paramedian	1.5 mm	Strong whisper	RLN palsy
Intermediate	3.5 mm		RLN and SLN
Gentle abduction	7 mm	Quiet respiration	Paralysis of adductors
Full abduction	9.5 mm	Deep inspiration	Paralysis of adductors

171. B. Bilateral abductor paralysis

- Bilateral abductor paralysis of vocal cords is a surgical emergency. If it is noticed on the table extubation can be deferred.
- Usually it is identified only during the first few days following surgery. In these patient management of airway takes precedence over voice management.
- Air way should be secured immediately by performing a tracheostomy.

172. A. Vocal cord medialization

Thyroplasty

Type I:

- Indicated for membranous vocal fold defects resulting in breathy dysphonia or aspiration
- Medializes vocal fold by inward lateral compression with an implant (silastic, gortex, hydroxyapatite) placed via a window in the thyroid cartilage

Type II:

- Lateral expansion (thyroid cartilage split with graft placed to widen anteriorly by lateralizing the vocal folds)

Type III:

1. Indicated to lower vocal pitch or address adductor spasmodic dysphonia by shortening and relaxing vocal folds

Type IV:

2. Indicated to increase vocal pitch by lengthening and tensing vocal folds

173. C. Glottic

Congenital Webs

- Most commonly anteriorly based
- Pathophysiology: incomplete recanalization at 8th week of embryological development
- Symptoms : weak cry at birth, aphonia, variable degrees of respiratory obstruction (inspiratory stridor)

174. B. Grades II.

Congenital Subglottic Stenosis

- Pathophysiology: incomplete recanalization, small diameter cricoid cartilage, or trapped first tracheal ring
- Grades: I. <70% obstruction, II. 70–90%, III. 91–99%, IV. Complete obstruction
- SSx: biphasic stridor in first few months of life, may mimic croup or recurrent URI, failure to thrive
- Dx: endoscopy, chest x-ray, neck plain films, flexible nasopharyngoscopy to assess vocal fold motion

175. A. Grades I and II.

Congenital Subglottic Stenosis

Management

Grade I–II:

- Consider endoscopic management (CO_2 or KTP laser excision with dilation)

Grade III–IV

Open Procedures: indicated for Grade III–IV or when endoscopic management is contraindicated

176. A. Laryngomalacia

Laryngomalacia

- Most common laryngeal anomaly
- Most common cause of stridor in neonate and chronic pediatric stridor

177. D. Hoarse voice

Laryngomalacia

Symptoms : Intermittent inspiratory stridor that improves in prone position; worse with feeding, crying, or when placed on back; presents within weeks of birth; normal voice; usually self-limiting as cartilage stiffens with growth

178. D. Double Aortic Arch

Vascular Rings

Types

1. Double Aortic Arch: most common vascular anomaly to cause stridor, right aortic arch persists, wraps around esophagus and trachea
2. Right Aortic Arch
3. Anomalous Innominate
4. Anomalous Left Common Carotid
5. Pulmonary Artery Sling: left pulmonary artery originates from right pulmonary artery, slings around right main stem bronchus, then between trachea and esophagus, 50% associated with distal bronchial hypoplasia

179. B. Retro-Esophageal Right Subclavian Artery

- Retro-Esophageal Right Subclavian Artery (Dysphagia Lusoria): most common vascular anomaly to compress aerodigestive tract

180. B. Vocal nodule

- Vocal nodule (singer's or screamer's node) occur at the junction of anterior. with middle third of vocal cords as this is the maximum vibratory area during speech.
- Vocal nodules are bilateral. Mostly seen in teachers,vendors, actors or popsingers as they speak in unnatural low tones or at high intensities for prolongedSperiods.
- Speech therapy re -education in voice production are essential in preventing recurrence.
- Vocal poly is typically unilateral but arising from the same position as vocal nodule.

181. C. Contact ulcer

Contact ulcer occur due to vocal abuse as in pachyderma laryngis.This condition is bilateral and symmetrical and does not undergo malignant change.

In TB there is ulceration of vocal cord giving mouse nibbled appearance. Pseudoedema of epiglottis cause turban epiglottis.

Parts affected in TB larynx :-

1. Interarytenoid fold
2. Ventricular bands
3. Vocal cords
4. Epiglottis

182. A Rhinovirus

Acute Viral Laryngitis

Pathogens: rhinovirus (most common), parainfluenza, respiratory syncytial virus, adenovirus, influenza virus, pertussis

183. D. Streptococcus

Adult Supraglottitis

Pathophysiology: typically secondary to purulent rhinosinusitis or tracheobronchitis

Common Pathogens: H. influenzae, S. pneumoniae, S. aureus, B-hemolytic Streptococcus

SSx: fever, muffled voice, dysphagia, stridor (inspiratory), obstructive symptoms may progress within hours

184. C. High grade fever

	Acute Laryngotracheobronchitis	Acute Epiglottitis
Pathogen	Parainfluenza virus 1	Streptococcus
Age	<5 years old	2 - 6 years old

Location	subglortic	supraglottic
Onset	gradual (days)	sudden onset (hours)
Cough	barky	normal
Posture	supine	upright
Drooling	no	yes
Fever	low grade	high fevers
Radiographs	steeple sign	thumbprinting
Treatment	supportive	airway management and antibiotics

185. B. Parainfluenza virus

- Parainfluenza viruses are important causes of respiratory diseases in infants and young children.
- The spectrum of disease caused by these viruses ranges from a mild febrile cold to croup, bronchiolitis, and pneumonia.
- Parainfluenza viruses contain RNA in a nucleocapsid encased within an envelope derived from the host cell membrane.
- Infected mammalian cell culture will hemabsorb red blood cells owing to viral hemagglutinin on the surface of the cell.

186. A. Radiation

- The diagnosis is subglottic hemangioma.

Radiotherapy is not a treatment option for the same while CO_2 laser, intraregional steroids and tracheostomy are tried

187. C. Acute Epiglottitis

- In acute epiglottitis, the epiglottis is swaollen and this finding on lateral soft tissue X Ray is known as "thumb sign".
- Absence of a deep well defined vallecula, known as vallecula sign is also seen in acute epiglottitis.

188. C. Laryngeal tuberculosis

Disease	Epiglottis
Normal epiglottis	Pinkish
Acute laryngitis	Bright red, swollen
Allergic laryngitis	Pale, swollen
Tuberculosis larynx	Tueban shaped

189. C. 24 hour double probe pH monitoring

Laryngopharyngeal reflux is best diagnosed with 24 hour double probe pH monitoring.

Reflux of acid in throat can cause-

- Pachydermia Larynx (its not premalignant)
- Pseudosulcus vocalis
- Vocal Nodule
- Vocal Polyp
- Contact Ulcer of larynx
- Subglottic stenosis
- Cancer larynx
- Unexplained throat pain and dry cough

Laryngeal pseudosulcus is seen in laryngopharyngeal reflux. This sulcus is not attached to the underlying tissues whereas a true vocal cord sulcus is adherent to underlying tissues of vocal cord.

190. B. Stridor with respiratory difficulty is the chief complaint

Atrophic laryngitis (laryngitis sicca)

- Atrophy of laryngeal mucosa & crust formation
- Often seen in women, a laryngeal counterpart of atrophic rhinitis
- Associated with atrophic rhinitis and pharyngitis
- Presents with dry cough

191. A. Bilateral adductor palsy

Bilateral abductor palsy

- The immediate treatment will be emergency tracheostomy.
- Then we wait for 6 months, if patient shows no recovery, then the treatment of choice is vocal cord lateralization (type 2 thyroplasty). It is also called suture cordopexy of the vocal cord
- Kashima operation is also useful. In this surgery, CO2 laser is used to separate the membranous and cartilaginous part of the vocal cords so that there is some space created for the airway.
- Woodman's operation is arytenoidectomy by open approach. This can also be done
- Type 1 thyroplasty is done in the case of bilateral adductor palsy

192. D. Repeat direct laryngoscopy every hour to assess laryngeal oedema

- In Acute Epiglottitis, the airway establishment by intubation or tracheostomy is the first treatment to be given.
- But repeated direct laryngoscopy should be avoided as this can aggravate the edema of larynx,

193. B. Pachydermia laryngis is a premalignant condition

- Pachydermia laryngis is not a premalignant condition.
- It is heaping up of epithelium in the interarytenoid region due to vocal abuse and laryngopharyngeal reflux.

194. A. Poor quality of voice & aspiration

- SLN supplies cricothyroid and sensory supply to Supraglottis part of larynx.
- Cricothyroid is tensor muscle which gives quality to voice.
- So patient have loss of quality of voice and Aspiration.

195. C. Acute Spasmodic Laryngitis

Acute Spasmodic Laryngitis (False Croup)

- Common in toddlers
- Pathophysiology: uncertain noninfectious etiology, may be secondary to GERD or allergy
- Nocturnal stridor and respiratory distress (not present during the day), otherwise normal head and neck exam aside from the stridor
- Supportive care (anti-reflux regimen), address allergies

196. A. Posterior interarytenoids

TB Laryngitis

- Typically secondary to pulmonary TB
- Lesion: granulation and ulcerative tissue in posterior glottis (posterior interarytenoids most common, laryngeal surface of epiglottis, vocal folds)

197. B. Scleroma of the Larynx

Scleroma of the Larynx/Rhinoscleroma

- Pathogen: Klebsiella rhinoscleromatis
- Histopathology: pseudoepitheliomatous hyperplasia of the larynx (similar to blastomycosis)

198. A. Anterior commissure

- Laryngeal papillomatosis, also known as recurrent respiratory papillomatosis or glottal papillomatosis, is a rare medical condition (2 per 100,000 adults and 4.5 per 100,000 children), caused by a HPV infection of the throat.
- Laryngeal papillomatosis causes assorted tumors or papillomas to develop over a period. Without treatment it is potentially fatal as uncontrolled growths could obstruct the airway.
- Laryngeal papillomatosis is caused by HPV types 6 and 11, in which benign tumors form on the larynx or other areas of the respiratory tract
- Most common site of laryngeal papillomatosis is Anterior commissure

199. A. Multiple sites of involvement, recurrent, may resolve spontaneously.

Recurrent Respiratory Papillomatosis

- Second most common cause of hoarseness in children
- (Higher risk in adults and HPV types 16 and 18)

Types

1. Juvenile: children, multiple sites of involvement, recurrent, may resolve spontaneously
2. Senile: may involve single sites, recurrence less common, identical histology

Management

- Microlaryngoscopy with Laser Excision: frequent conservative endoscopic CO2 laser ablation (biopsy to evaluate for malignancy)
- Avoid tracheotomy, may seed lower airway or stoma

200. D. Interferons

- Glomus tumors can be treated with surgical excision, radiation therapy, surgery and irradiation, or embolization and surgery.
- Surgical removal is often associated with a significant intraoperative bleeding rate because of the vascular nature of the tumors, especially when they are large.
- To reduce intraoperative blood loss, preoperative devascularization with transarterial embolization has proved beneficial,but this often remains incomplete because of the extensive angioarchitecture and substantial arteriovenous shunting of these lesions.
- Alternatively, direct puncture and the injection of acrylic glue have been described, but these can also be associated with complications.

201. B. Cidofovir

- Mechanical/laser removal of the papillomatous lesions combined with cidofovir injection, control visits and indirect laryngoscopy (stroboscopy) in outpatient clinic every 4–6 weeks, immediate hospitalization, and another surgical procedure in suspicion of recurrence.
- Maximum total dose of cidofovir should not exceed 3 mg/kg.
- Due to high toxicity of cidofovir, analysis of laboratory parameters like morphology with blood smear, urea, creatinine, ALT, AST, and bilirubin levels before the treatment, 1 day and 4 weeks after the injection.
- All papillomas should be examined histopathologically to exclude any dysplastic features or malignant transformation.

202. A. Breathy voice

ADDUCTOR SPASMODIC DYSPHONIA

Strained or strangled and full of effort voice

Abductor Spasmodic Dysphonia

Sound weak, quiet and breathy or whispery

203. D. Type 4 Thyroplasty

- Androphonia refers to masculinisation of female voice.
- This can be treated by type 4 thyroplasty.
- It increases the length and tension of the cord, thereby increasing the pitch of voice.

204. A. Immediate removal of the tracheostomy tube

- Portex tube is cuffed and is devoid of an inner tube.
- Complete obstruction of the tube hence amounts to total airway obstruction and can lead to serious consequences.
- Hence immediate removal of the tube is required to find out the cause of obstruction.

205. B. 30 - 50%

- Airflow resistance of the normal upper airway is substantial, constituting up to 80% of total airway resistance during nose breathing and 50% during mouth breathing.
- Theoretically, tracheostomy tubes should decrease airflow resistance, but in fact this does not occur

because of the smaller radius (inner diameter 7–8 mm) of the tubes.

- Tracheostomy tubes may reduce dead space by up to 100 mL -150 mL 30 or 50%, when compared to spontaneous breathing.This occurs because the tubes are small and bypass the glottic and supraglottic spaces

206. B. 400 mm

- Surgical microscopes have the ability to fine focus with focal lengths that may vary from the standard microlaryngeal surgical focal length of 400 mm.

207. B. Cricoid..

Chondromas

- More common in men
- SSx: insidious hoarseness from vocal fold restriction, dyspnea for subglottic lesions, dysphagia for posterior cricoid lesions, globus sensation
- Rx: complete excision via an endoscopic or external approach (depending on the size of lesion)

208. B. Granular Cell Tumor

Granular Cell Tumor

- Arise from Schwann cells in the posterior aspect of true vocal fold or arytenoids
- Complete excision via an endoscopic or external approach (depending on the size of lesion)

209. D. Epiglottis

Sarcoidosis

- Supraglottic submucosal mass (epiglottis most common), dysphonia, globus sensation, dyspnea
- Rx: endoscopic removal for symptomatic lesions (hoarseness or airway obstruction), may consider corticosteroids for significant exacerbations

210. C. Subglottic

Wegener's Granulomatosis

- Most commonly involves the subglottis
- Laryngeal SSx: subglottic mass, dyspnea, biphasic stridor
- Rx: endoscopic removal for symptomatic lesions, medical management

211. A. Cricoarytenoid joint

Arthritis of Cricoarytenoid Joint

- Cricoarytenoid joint mostly commonly affected
- Rheumatoid Arthritis most common etiology

212. A. Increased risk of laryngeal cancer

Reinke's Space Edema (Polypoid Degeneration)

Reinke's space: superficial layer of the lamina propria, loose connective tissue (susceptible to fluid accumulation)

Risks: GERD, smoking, hypothyroidism, vocal abuse, chronic throat clearing, chronic cough

Not associated with increased risk of laryngeal cancer

213. C. Ventricular Prolapse

- Ventricular Prolapse: not a cyst, laryngeal ventricle protrudes between true and false vocal folds, associated with chronic bronchitis;

214. D. Laryngocele

Laryngocele and Saccular Cysts

- Laryngocele: air filled dilation of the appendix of the ventricle, communicates with laryngeal lumen
- Laryngopyocele: infected pus-filled laryngocele
- Saccular Cyst: fluid filled dilation of the saccule without communication with the laryngeal lumen

215. B. Lower pitch

Presbylaryngis/Bowing Defects of the Vocal Folds

- Pathophysiology: aging results in ossification of the laryngeal skeleton, arthritis of the cricoarytenoid and cricothyroid joints, degeneration of the vocal fold layers (resulting in a bowing defect)
- Hoarse-breathy voice, higher than

normal pitch, voice fatigue, may have voice tremors, potential risk of aspiration

- Rx: Voice therapy, address aspiration if present

216. B. Vocal Fold Granulomas

Vocal Fold Granulomas (Intubation Granulomas)

- Granulation tissue on the medial aspect of the arytenoids near the vocal process, posterior commissure region typically self-limiting.

217. C. Vocal nodules

Vocal Nodules (Singer's Nodules)

- More common in young women and children
- Bilateral inflammatory tissue at junction of anterior and middle third of vocal fold (the middle portion of the membranous vocal fold has the greatest amplitude in the mucosal wave making it susceptible to injury with voice abuse)

218. D. Vocal polyps

Vocal Fold Polyps

Typically unilateral, middle and anterior vocal folds at free edge

219. A. 1.5 mm from midline

Position of cords	Location of V.C from midline	Healthy	Diseased
Median	Midline	Phonation	RLN palsy
Paramedian	1.5 mm	Strong whisper	RLN palsy
Intermediate	3.5 mm		RLN and SLN
Gentle abduction	7 mm	Quiet respiration	Paralysis of adductors
Full abduction	9.5 mm	Deep inspiration	Paralysis of adductors

220. C. Injection of Teflon

Lateralisation	• Arytenoidectomy • Lateralisation via endoscope • Thyroplasty Type II • Cordectomy • Nerve muscle implant (Sternohyoid)
Medialisation.	• Injection of Teflon. • Thyroplasty Type I • Muscle or cartilage implant • Arthrodesis of cricoarytenoid joint.

221. A. Thyroplasty Type I.

THYROPLASTY

Type I:

- Indicated for membranous vocal fold defects resulting in breathy dysphonia or aspiration
- Medializes vocal fold by inward lateral compression with an implant (silastic, gortex, hydroxyapatite) placed via a window in the thyroid cartilage

Type II:

- Lateral expansion (thyroid cartilage split with graft placed to widen anteriorly by lateralizing the vocal folds)

Type III:

3. Indicated to lower vocal pitch or address adductor spasmodic dysphonia by shortening and relaxing vocal folds

Type IV:

4. Indicated to increase vocal pitch by lengthening and tensing vocal folds

222. C. Subglottic space

Pediatric Airway Anatomy

5. Subglottic region is the narrowest portion of the pediatric airway.

223. A. Puberphonia

Puberphonia

- Pathophysiology: occurs during puberty, difficulty adjusting to the

larger, more mature larynx

- SSx: recurrent "cracked," shrill, high-pitched voice
- Gutzmann's pressure test : Pressing the thyroid prominence in a backwards and downward direction relaxes the overstretched cords and low tone voice can be produced.

224. D. Plica Ventricularis

- Plica Ventricularis: faulty use of false vocal folds (hyper-Adduction), must rule out organic etiology

225. C. 3 months

Pediatric Tracheotomy

- Prolonged intubation generally preferred over tracheotomy in neonates up to 6 months (high risk of subglottic stenosis)
- May consider performing tracheotomy with a rigid bronchoscope to provide rigidity and facilitate dissection
- Consider endoscopy every 3 months for pediatric tracheotomy to evaluate for stenosis

226. D. Conus elasticus

Barriers and Spaces of the Larynx

- Pre-epiglottic Space: midline fibro-fatty-filled space bounded by the hyoid bone, thyrohyoid membrane, hyoepiglottic ligament, thyroepiglottic ligament, and epiglottis; tumor may enter from anterior commissure or supraglottic extension; continuous with paraglottic space

227. A. Infrahyoid epiglottis

Classification by Site and Staging

Supraglottis

- Approximately 30–40% of laryngeal cancer
- SSx: sore throat, hemoptysis, aspiration, dysphagia, odynophagia,airway obstruction (stridor), referred otalgia, weight loss, globus sensation
- Inferior Border: apex of the ventricle
- Histology: ciliated pseudostratified columnar epithelium
- Subsites: suprahyoid epiglottis, infrahyoid epiglottis (most common supraglottic site for cancer), aryepiglottic fold, arytenoids, false cords

228. B. Glottis

Glottis

- Approximately 50–75% of laryngeal cancer
- SSx: hoarseness, aspiration, dysphagia, odynophagia, airway obstruction, weight loss, sore throat
- Inferior Border: 1 centimeter below apex of ventricle
- Histology: stratified squamous epithelium
- Typically diagnosed at early stages due to early symptomatology (hoarseness) and the barriers of tumor spread (vocal ligament, thyroglottic ligament, and conus elasticus)

229. C. Subglottis

Subglottis

- Rare primary site
- Ssx: airway obstruction (biphasic stridor), hoarseness, dysphagia, odynophagia, hemoptysis, weight loss, sore throat
- Inferior border: level of cricoid cartilage
- Histology: ciliated pseudostratified columnar epithelium
- Often silent, poorly differentiated, usually extends into cricoid cartilage
- Poor prognosis
- <20% regional metastasis

230. B. Supraglottis Carcinoma Stage T_3

Supraglottis Carcinoma

6. Approximately 30–40% of laryngeal cancer

Symptoms:

7. Sore throat, hemoptysis, aspiration, dysphagia, odynophagia, referred otalgia, weight loss, globus sensation

STAGING (BASED ON THE AJCC STAGING, 2002)

T_1: Primary tumor limited to one subsite of supraglottic with normal vocal cord mobility

T_2: Primary tumor involves mucosa of adjacent subsite or outside region of supraglottis
(base of tongue,vallecula,medial wall of pyriform sinus) without fixation of larynx.
T_3: Tumour limited to larynx with vocal cord fixation and / or invades any of the following: postcricoid, preepiglottic space,para-glottic space and / or minor thyroid cartilage invasion.
T_4a: Tumour invades thyroid cartilage and / or invades tissue beyond the larynx(e.g. trachea, soft tissues of neck including deep extrinsic muscle of tongue, strap muscles, thyroid, or esophagus)
T_4b: Tumour invades prevertebral space,encases carotid artery or invades mediastinal structures.

231. C. Supraglottic extension

General Contraindications for Partial Laryngectomies
1. Fixed cords (except supracricoid laryngectomies)
2. Cartilage invasion
3. Subglottic extension
4. Significant oropharyngeal extension
5. Interarytenoid involvement
6. Tumor spread into neck

232. B. Supraglottic Laryngectomy

Supraglottic Laryngectomy (Horizontal Hemilaryngectomy)
Indications: T1 or T2 (limited T3) supraglottic tumors; tumor does not involve vocal fold, ventricle, thyroid cartilage, arytenoid, interarytenoid region, pyriform, or base of tongue; good pulmonary function tests (forced expiratory volume [FEV1] >50–60

233. C. T3

TNM staging of cancer glottis

- T1 tumour confined to vocal cords with normal mobility.
- confined to one vocal cord
- extending to both vocal cords
- T2 supraglottic or subglottic extension of tumour with normal cord mobility.
- T3 tumour confined to larynx with vocal cord fixation.
- T4 massive tumour with thyroid cartilage destruction and/or extension to confines of larynx.

234. C. Metal tubes are ideally changed every 3 days

- The most important advantage of metal tube is that it is suitable for home tracheostomy care.
- Since it is provided with an inner tube and an outer tube, it is possible to clean after removing the inner tube, while the outer tube maintains the patency of the tracheostoma.
- Hence there is no need to change the metal tube frequently. Metal tubes are usually made up of German silver. Since it provides an airtight seal, cuffed tubes are used for IPPV

235. D. He should first undergo laryngectomy and then postoperative radiotherapy

- Treatment of choice for perichondritis larynx is total laryngectomy and postoperative radiotherapy is administered to take care of any extralaryngeal spread.
- Irradiation is contraindicated in the presence of perichondritis larynx.

236. B. Upper jugular

Supraglottis:
a. Sites: Suprahyoid epiglottis (suprahyoid and infrahyoid), aryepiglottic folds, arytenoids, false cords
b. Inferior border: horizontal plane passing through lateral margin of the ventricle
c. Lymphatics: Rich network, pass through thyrohyoid membrane into subdigastric, midjugular, and lower jugular nodes

237. D. Arytenoid

Vertical Partial Laryngectomy:
Removal of:

- One vocal told – from anterior commissure to vocal process
- 1/2 of opposite vocal fold may also be removed if involved

- Ipsilateral false vocal cord
- Ventricle
- Paraglottic space (and overlyin thyroid cartilage)

238. B. Laser cordectomy

- For T1 lesions, co2 laser has replaced radiotherapy as the treatment of choice.

239. B. Cry is normal in the patient

- The child's cry is abnormal in laryngeal web

240. B. Voice

- The Blom-Singer Indwelling voice prosthesis is an indwelling style, clinician-placed voice prosthesis.
- The product is designed for laryngectomees who are unable or unwilling to routinely remove, clean, and reinsert a patient-changeable voice prosthesi

241. A. Thyroarytenoid.

Phonasthenia: Weakness of voice.

- Elliptical space between the cords : Thyroarytenoid
- Triangular gap near the posterior commissure: Interarytenoid.
- Key – Hole appearance of glottis.

242. The earliest nerve to be involved in acoustic neuroma is.

a. Vth nerve b. VIIth nerve
c. X1 nerve d. X11 nerve

243. Schwartz operation is also called as

a. Cortical mastoidectomy
b. Modified radical mastoidectomy
c. Radial mastoidectomy
d. Fenestration operation

244. A 30 years old male is having Attic cholesteatoma of left ear with lateral sinus thrombophlebitis. Which of the following will be the operation of choice?

a. Intact canal wall mastoidectomy
b. Simple mastoidectomy with Tympanoplasty
c. Canal wall down mastoidectomy
d. Mastoidectomy with cavity obliteration

245. Which of the following is not a typical feature of Meniere's disease?

a. Sensorineural deafness
b. Vertigo
c. Pulsatile tinnitus
d. Fluctuating deafness

246. In a classical case of Meniere's disease which one of the following statement is true:

a. Carhart's Notch is a characteristic feature in puretone audiogram
b. Schwartz's sign is usually present in the tympanic membrane
c. Low frequency sensory neural deafness is often seen in pure tone audiogram
d. Decompression fallopian canal is the treatment of choice

247. The glomus tumor invasion of jugular bulb is diagnosed by

a. Carotid angiography
b. Vertebral venous venography
c. X ray
d. Jugular venography

248. A 45 years old female with family history of hearing loss from her mother's side developed hearing problem during pregnancy. Impaired hearing is bilateral, slowly progressive, with bilateral tinnitus. Pure tone audiometry shows apparent bone conduction hearing loss at 2000 Hz. What is the most likely diagnosis?

a. Otosclerosis
b. Meniere's Disease
c. Otitis media with effusion
d. Sigmoid sinus thrombosis

249. A 31 year old female patient complaints of bilateral impairment of hearing for the past 5 years. On examination, tympanic membrane is normal and audiogram shows a bilateral conductive deafness. Impedance audiometry show hypomobile tympanogram. All constitute part of treatment, except:

a. Hearing aid
b. Stapedectomy
c. Sodium Fluoride
d. Gentamicin

250. Untrue statement regarding Vestibular neuronitis is:

a. Vertigo lasting days after an upper respiratory infection
b. Associated hearing loss
c. Associated neurologic sign or symptoms
d. Chronic onset of vertigo

242. a	243. a	244. c	245. c	246. c	247. d	248. a	249. d	250. d

251. Subjective tinnitus is far more common than objective tinnitus; example of such tinnitus is:

a. Arteriovenous malformations
b. Palatal myoclonus
c. Tensor tympani muscle spasm
d. Presbycusis

252. Most consistent physical sign of coalescent mastoiditis

a. Sagging
b. Conductive deafness
c. Aural discharge
d. Tenderness

253. Incision being shown in fig A is:

A

a. Schobinger
b. Mc Fee
c. Hockey-stick
d. Gluck-Sorenson's

254. 'Gradenigo triad' is characteristic of;

a. Petrous Apicitis
b. Facial Nerve Paralysis
c. Subperiosteal Abscess
d. Labyrinthine Fistula

255. Laser having wave length 10600 nm is

a. CO2 Laser
b. Nd:YAG Laser
c. KTP Laser
d. Argon Laser

256. Which of the following does not form Waldeyer's ring?

a. Palatine Tonsils
b. Adenoids
c. Jugulodigastric node
d. Lateral pharyngeal bands

257. Recurrent acute tonsillitis is;

a. Documented 9 infections in 1 year
b. Documented 7 infections in 1 year
c. Documented 5 infections in 1 year
d. Documented 3 infections in 1 year

258. In Caldwell-Luc procedure the incision is made in the:

a. Palpebral Sulcus
b. Inferior orbital sulcus
c. Chiasmatic sulcus
d. Gingivobuccal sulcus

259. No cartilage is found between tragus and the crux of helix; this area is called:

a. Tragus
b. Antitragus
c. Cymba conchoa
d. Incisura terminalis

260. Dimension of tympanic membrane is:

a. 10 mm tall, 9 mm wide and 0.1 mm thick
b. 1 mm tall, 9 mm wide and 0.1 mm thick
c. 10 mm tall, 9 mm wide and 1 mm thick
d. 1 mm tall, 9 mm wide and 1 mm thick

261. The following structure represents all the three components of the embryonic disc:

a. Tympanic membrane
b. Retina
c. Meninges
d. None of the above

262. Processus cochleariformis is related to:

a. Tendon of tensor tympani
b. Basal turns cochlea
c. Handle of malleus
d. Incus

251. d	252. d	253. c	254. a	255. a	256. c	257. b	258. d	259. d	260. a
261. a	262. a								

263. Most of the medial surface of pinnae is supplied by:

a. Greater auricular
b. Lesser occipital
c. Auricotemporal
d. Auricular branch of vagus

264. Identify the congenital abnormality:

a. Bat ear
b. Mozaic ear
c. Wildermth ear
d. Mondini dysplasia

265. The basilar and tectorial membranes of the cochlea

a. Are of a uniform width but vary in thickness within the cochlea
b. Are of a constant width and thickness throughout the cochlea
c. Vary in both thickness and width in a base-toapex pattern within the cochlea
d. Are middle ear structures and are not located within the cochlea

266. The bony cochlea is a coiled tube making....turns around a bony pyramid called...:

a. 2 ¼, modiolus
b. 2 ½, helocotrema
c. 2 ¾ modiolus
d. 2 ¾ helicotrema

267. Features of moderately retracted tympanic membrane are all except:

a. Handle of malleus appearance foreshortened
b. Cone of light is absent or interrupted
c. Lateral process of malleus becomes more prominent
d. Shiny pearly white tympanic membrane

268. Portion of middle ear around the tympanic orifice of Eustachian tube is:

a. Mesotympanum
b. Epitympanum
c. Hypotympanum
d. Protympanum

269. Instrumentation of the external canal can cause nausea or coughing through stimulation of the:

a. 5th cranial nerve
b. 7th cranial nerve
c. 9th cranial nerve
d. 10th cranial nerve

270. Infant eustachean tube is characterized by all except:

a. About half as long as in the adults
b. The osseous portion is longer than the cartilagenous portion
c. It is shorter, straighter, and wider than that of adults
d. The tensor veli palatini muscle is more efficient in infants

271. Sinus tympani is bounded by:

a. Only subiculum
b. Only ponticulus
c. Subiculum above and ponticulus below
d. Subiculum below and ponticulus above

272. Korner's septum is:

a. Petrosquamous suture
b. Petrotemporal suture
c. Temporosquamous suture
d. None

273. Most susceptible ossicle in chronic suppurative otitis media is:

a. Neck of malleus
b. Short process of incus
c. Long process of incus
d. Neck of stapes

263. a	264. a	265. c	266. c	267. d	268. d	269. d	270. d	271. c	272. a
273. c								

274. Tympanic plexus is formed by:
a. Spinal assessory nerve and sympathetic fibres
b. Vagus nerve and sympathetic fibres
c. Glossopharyngeal nerve and sympathetic fibres
d. Arnold's and sympathetic fibres

275. Eustachian tube is lined by:
a. Pseudostratified columnar in bony part and columnar in cartilaginous
b. Pseudostratified columnar in both cartilaginous and bony part
c. Columnar in both cartilaginous and bony part
d. Pseudostratified columnar in cartilaginous part and columnar in bony

276. Patulous eustachian tube seen in
a. Pregnancy
b. Cleft palate
c. Down syndrome
d. ASOM

277. Lateral wall of vestibule is formed by:
a. Footplate of the stapes
b. Semicircular canals
c. Internal acoustic meatus
d. Modiolus

278. Labyrinthine artery is a branch of: -
a. Internal carotid artery
b. Basilar artery
c. Posterior cerebellar artery
d. Anterior inferior cerebellar artery

279. External ear canal is fully formed by:
a. 6th wk b. 8th wk
c. 20th wk d. 28th wk

280. All are subjective tests for audiometry except
a. Tone decay
b. Impedance audiometry
c. Speech audiometry
d. Pure tone audiometry

281. Which of the following is not an indication for stapedectomy:
a. Conductive deafness due to fixation of stapes
b. Air bone gap of atleast 40 dB.
c. Presence of Carhart's notch
d. Presence of active otosclerotic foci

282. A lady has B/L hearing loss since 4 years which worsened during pregnancy. Type of impedance audiometry graph will be:
a. Ad b. As
c. B d. C

283. According to WHO classification, for severe degree of impairment of hearing is at
a. 26-40 db b. 41-55 db
c. 56-60 db d. 61-80 db

284. Direction of water jet while doing syringing of ear should be:
a. Anterior
b. Poster superior
c. Anterosuperior
d. Posteroinferior

285. A new born presents with bilateral microtia and external auditory canal atresia. Corrective surgery is usually performed is:
a. < 1 year of age
b. 5-7 years of age
c. Puberty
d. Adulthood

286. To distinguish between cochlear and post cochlear damage test done is:
a. Brainsterm evoked response
b. Impedence audiometry
c. Pure tone audiometry
d. All of above

287. After rupture of tympanic membrane the hearing loss is:
a. 10-40 dB b. 5-15 dB
c. 20 dB d. 300 dB

274. c	275. d	276. a	276. a	278. d	279. d	280. b	281. d	282. b
283. d	284. b	285. b	286. a	287. a				

288. Study the given image and comment on 'Hole' Diameter:

a. 89 mm b. 69 mm
c. 19 mm d. 29 mm

289. Last component of the pinna to develop is:

a. Tragus b. Lobule
c. Helix d. Antihelix

290. The pressure gain that results from ossicular coupling in normal ears is:

a. Negligible
b. Frequency-dependent
c. Frequency-independent
d. Intensity - dependent

291. Prussak's space is bounded below by?

a. Fibers of lateral malleolar fold
b. Shrapnell's membrane
c. Malleus
d. Incus

292. Endolymph in the inner ear:

a. Is a filtrate of blood serum
b. Is secreted by Stria vascularis
c. Is secreted by Basilar membrane
d. Is secreted by Hair cells

293. What is the type of joint between the ossicles of hear:

a. Fibrous joint
b. Primary cartilaginous
c. Secondary cartilaginous
d. Synovial joint

294. In cochlea, endolymph has potential of:

a. +80 mv b. −80 mv
c. +20 mv d. −20 mv

295. Vertical nystagmus is produced by stimulating:

a. Horizontal canal
b. Superior canal
c. Posterior canal
d. All

296. Resonance Frequencies are natural frequencies that vibrate a mass with the least amount of force. Resonance frequency for Concha is

a. 800–1600 Hz b. 800 Hz.
c. 4000–6000 Hz d. 500–2000 Hz

297. Hitzelberger's sign is defined as

a. Reduced corneal sensitivity
b. Hypoesthesia of the posterior meatal wall
c. Paraesthesia of face
d. Delayed blink reflex

298. Receptors for rotational acceleration are:

a. Vestibular receptors
b. Otolithic organs
c. Semicircular canals
d. None

299. Select the most inappropriate statement regarding "Keratosis Obturans"

a. Is an growth abnormality
b. Keratin plugs should be initially removed with acetic acid
c. Usually bilateral
d. Associated with frequent ear discharge

300. Wet Newspaper' like appearance in external auditory canal is a feature of

a. Localised otitis externa
b. Otomycosis
c. Exosteosis
d. Diffuse otitis externa

301. Keratosis obturans is caused due to

a. Abnormal collection of cerumen in the outer part of external auditory canal
b. Abnormal collection of cerumen in the deeper part of external auditory canal
c. Abnormal epithelial migration of skin of external auditory canal
d. Chronic foul smelling ear discharge present in external auditory canal

288. c	289. b	290. b	291. c	292. b	293. d	294. a	295. c	296. c	297. b
298. c	299. d	300. b	301. c						

302. High frequency audiometry is used in
a. Ototoxicity
b. Otosclerosis
c. Non-organic hearing loss
d. Meniere's disease

303. Which of the following is not true about Eustachian tube?
a. Medial 24 mm is cartilaginous and lateral 12 mm is bony
b. Its angled at 45 degrees with horizontal at birth
c. The opening of Eustachian tube lies 1.25 cm behind the posterior end of inferior turbinate in the nasopharynx
d. Tensor palati is the main muscle to open the Eustachian tube

304. Lyre sign in seen in:
a. Grave's disease
b. Meniere's disease
c. Lateral sinus thrombosis
d. Carotid body tumour

305. The incision used in endomeatal approach to the ear is?
a. Lempert I incision
b. Rosen's incision
c. Lempert II incision
d. Wilde's incision

306. Robinson prosthesis is related with:
a. Otosclerosis
b. Meniere's
c. Glomus tumors
d. Traumatic perforation

307. All are causes of sensorineural deafness except:
a. Old age
b. Cochlear otosclerosis
c. Loud sound
d. Rupture of tympanic membrane

308. Tuning fork of 512 Hz is used to test the hearing because it is:
a. Better heard
b. Better felt
c. Produces over tones
d. Not heard

309. A 22 year old kamla came with impairment of hearing. Rhiinn's test showed positive result on right side & negative result on left side. Weber's test showed lateralization to left side diagnosis:
a. Right sided conductive deafness
b. Right sided sensorineural deafness
c. Left sided sensorineural deafness
d. Left sided conductive deafness

310. Fistula test stimulates:
a. Lateral semicircular canal
b. Posterior semicircular canal
c. Anterior semicircular canal
d. Cochlea

311. False positive fistula test is associated with
a. Perilymph fistula
b. Malignant sclerosis
c. Congenital syphilis
d. Cholesteatoma

312. Average thresholds for speech frequency are:
a. 128, 250, and 500 Hz
b. 250, 500, and 1000 Hz
c. 128, 1000, and 2000 Hz
d. 500, 1000, and 2000 Hz

313. Type C tympanogram suggest:
a. Otosclerosis
b. Tympanosclerosis
c. Effusion
d. Eustachian tube dysfunction

314. Acoustic reflex is typically elicited at:
a. 30 dB above threshold
b. 50 dB above threshold
c. 60 dB above threshold
d. 70 dB above threshold

315. Otoacoustic emissions arise from?
a. Inner hair cells
b. Outer hair cells
c. Organ or Corti
d. Brain stem

302. a	303. b	304. d	305. b	306. a	307. d	308. a	309. d	310. a	311. c
312. d	313. d	314. d	315. b						

316. All of the following are features of CSOM except:

a. Rinne - Positive on the affected side
b. Weber - Lateralised to the diseased ear
c. Pure Tone audiometry show conductive hearing loss
d. The hearing loss is invariably under 40 dB

317. Group A of 'Austine Kartush classification' includes:

a. Malleus and stapes present (commonly seen status) because of precarious vascularity of incus
b. Malleus and foot plate of stapes present
c. Malleus absent and stapes present
d. Malleus and stapes suprastructure absent

318. Sensorineural deafness is seen in all of following except:

a. Alport syndrome
b. Treacher Collin's syndrome
c. Pendred's syndrome
d. Michael's aplasia

319. In Bing's test on alternately compressing and relaxing the tragus, the sound increases and decreases; this indicates:

a. Sensorineural deafness
b. Adhesive otitis media
c. Otosclerosis
d. CSOM

320. Use of instrument shown in Fig provides all except:

a. Magnification
b. Assessment of movement of the tympanic membrane
c. Removal of foreign body from the ear
d. As applicator for the powdered antibiotic of ear

321. Spontaneous otoacoustic emissions:

a. Does not require external stimulus, not present in all normal ears
b. Require external stimulus, not present in all normal ears
c. Does not require external stimulus, present in all normal ears
d. Require external stimulus, present in all normal ears

322. False regarding hearing assessment in newborn:

a. Done for all normal babies to assess hearing
b. Using BERA
c. Using OAE
d. Using pure tone audiometry

323. Recording of evoked neuroelectrical events from the auditory nerve and cochlea in response to auditory clicks via air conduction is:

a. Electrocochleography
b. Otoacoustic Emissions
c. Auditory Brainstem Response
d. Acoustic Reflex Testing

324. Recruitment phenomenon is seen in:

a. ASOM
b. CSOM
c. Traumatic perforation
d. Endolymphatic hydrops

325. Peak V in Auditory Brainstem Response (ABR) suggest:

a. Eighth nerve (proximal segment)
b. Eighth nerve (distal segment)
c. Lateral lemniscus
d. Inferior Colliculus

316. a	317. b	318. b	319. a	320. c	321. a	322. d	323. a	324. a	325. c

326. Minimum hearing loss is seen in which of the following lesions of conductive apparatus.

a. Complete obstruction of ear canal
b. Ossicular interruption with intact drum
c. Ossicular interruption with perforation
d. Closure of oval window

327. The center for stapedial reflex is:

a. Superior olivary complex
b. Medial geniculate body
c. Superior colliculus
d. Lateral lemniscus

328. Bone conduction is decreased in

a. Ossicular necrosis
b. Ossicular disruption
c. Tympannic perforation
d. Cochlear disease

329. Type V curve of Beksey audiometry is seen in:

a. Normal hearers
b. Cochlear lesion
c. Retrocochlear lesion
d. Non-organic hearing loss

330. 'Columella tympanoplasty' is:

a. Type I b. Type II
c. Type III d. Type IV

331. Most reliable test for eustachian tube dysfunction:

a. Politzer test
b. Tympanometry
c. VEMP
d. Rhinomanometry

332. An audiogram of an individual is given below

Ear	500 Hz	1000Hz	2000Hz
Right	30 db	30 db	60 db
Left	30 db	45 db	60 db

Degree of hearing handicap is:

a. 24 % b. 34 %
c. 42 % d. 50 %

333. Peripheral vertigo is characterized by

a. Severe intensity
b. Vertical nystagmus
c. Does not fatigue
d. Bilateral nystagmus

334. In modified kobrak test, labyrinth is considered dead if no response is seen on:

a. 5 ml water b. 10 ml water
c. 20 ml water d. 40 ml water

335. Constriction of the helix and scapha lead to:

a. Protruding Ear
b. Cryptotia
c. Cup Ear Deformity
d. Colobomata

336. Incorrect statement regarding nystagmus of 'Benign Paroxysmal Positional Vertigo'?

a. Several (2-to 10-) second latency
b. Geotropic (beating toward the ground)
c. Horizontal-rotary
d. Lasts more than 60 seconds before abating

337. What is the most common form of barotrauma in recreational scuba divers?

a. Barotitis media
b. Eustachian barotrauma
c. Inner ear barotrauma
d. Auricular barotrauma

338. True unilateral neoplastic benign outgrowth in the external auditory canal:

a. Papilloma
b. Osteoma
c. Keratosis Obliterans
d. Exostoses

339. External auditory canal cholesteatoma caused by blockage of the EAC permitting accumulation of epithelial debris is:

a. Papilloma
b. Osteoma
c. Keratosis Obliterans
d. Exostoses

326. a	327. a	328. d	329. a	330. c	331. b	332. b	333. a	334. d	335. c
336. d	337. a	338. b	339. c						

340. Appropriate treatment for an acute stable hematoma of the pinna of the ear includes which of the following measures?

a. Ice packs and prophylactic antibiotics
b. Excision of the hematoma
c. Needle aspiration
d. Incision, drainage, and pressure bandage

341. Multiple or bilateral smooth sessile protrusions of the medial bony canal is:

a. Papilloma
b. Osteoma
c. Keratosis Obliterans
d. Exostoses

342. Sade classification is related with retraction of pars tensa, Grade 2 includes

a. Mild retraction
b. Retracted TM touching incus or stapes
c. TM touching promontory but moves on seigelisation
d. TM touching promontory, does not move

343. Most common organism associated with "Osteomyelitis of the Skull Base':

a. Streptococcus
b. Staphylococcus
c. H.influenzae
d. Pseudomonas

344. Clinical evidence of malignant otitis externa with infection of soft tissues beyond the external auditory canal but negative Tc-99 Bone scan is:

a. Stage 1 b. Stage 2
c. Stage 3 d. Stage 4

345. All are true about malignant otitis externa except

a. Skull base osteomyelitis
b. Technetium scan is more useful in the prognostic evaluation of this entity
c. ESR can be used to monitor the progression of disease
d. Facial nerve is the most commonly involved nerve

346. Predominant dilator of "Eustachian Tube" is:

a. Tensor veli palatini
b. Levator veli palatini
c. Salpingopharyngeus
d. Tensor tympani

347. In the human, the most commonly affected cells of the inner ear in noise trauma are

a. Intermediate cells of the stria vascularis
b. Inner hair cells
c. Interdental cells
d. Outer hair cells

348. Most common intracranial complication of CSOM is:

a. Meningitis
b. Brain abscess
c. Lateral sinus thrombosis
d. Subdural abscess

349. Most common route of ASOM is:

a. Blood borne
b. Via external canal
c. Via E.T
d. Lymphatic borne

350. Light house sign seen in

a. Serous otitis media
b. ASOM
c. CSOM
d. Otic hydrocephalus

351. Bilateral Down-sloping High Frequency SNHL is feature of:

a. Ossicular chain discontinuity
b. Endolymphatic hydrops
c. Presbycusis
d. None

352. Lombard test is done for:

a. Presbycusis
b. Pseudohypacusis
c. ASOM
d. CSOM

340. d	341. d	342. b	343. d	344. a	345. b	346. a	347. d	348. a	349. c
350. b	351. c	352. b							

353. All of the following are "VOICE TESTS FOR MALINGERING" except:

a. Erhardt's test
b. Delayed speech feed back test
c. Two tube test of Teuber
d. Stenger's test

354. The brown sign is seen in:

a. Glomus tumour.
b. Meniere's disease
c. Acoustic neuroma
d. Otosclerosis

355. True statement regarding facial palsy:

a. Common with longitudinal fracture
b. Common with transverse fracture
c. Always associated with CSF otorhoea
d. Complete nerve palsy

356. A patient presents with facial nerve palsy following head trauma with fracture of the mastoid; best intervention here is:

a. Immediate decompression
b. Wait and watch
c. Facial sling
d. Steroids

357. Electrode of cochlear implant is inserted at:

a. Round Window
b. Lateral semicircular canal
c. Oval window
d. Vestibular aquidect

358. Cochlear implants may be associated with:

a. Pneumococcal meningitis
b. Facial cellulitis
c. Septic jugular vein thrombosis
d. Brain abscess

359. Which of the following would be the most appropriate treatment for rehabilitation of a patient, who has bilateral profound deafness following surgery for bilateral acoustic schwannoma:

a. Bilateral high powered digital hearing aid
b. Bilateral cochlear implants
c. Unilateral cochlear implant
d. Brain stem implant

360. Cochlear implant is done in:

a. Scala vestibule
b. Scala tympani
c. Cochlear duct
d. Endolymphatic duct

361. Ideal time for treatment of hearing loss for language development is

a. 6months
b. 1 year
c. 2 year
d. 3 year

362. A 5 year old patient presents with the history of hearing loss. On examination he is found to have a pearly white mass behind the intact tympanic membrane. What is the most possible diagnosis?

a. Congenital cholesteatoma
b. Otomycosis
c. Otosclerosis
d. Exosteosis

363. A 25 year old young Swimmer came with the complaints of itching and pain in right ear since 2 days. On examination the patient cried as the surgeon pulled the ear Pinna. He also noticed that the ear canal was narrowed, edematous and the skin is red. The disease the swimmer is suffering from?

a. Furuncle
b. Acute diffuse external otitis
c. Malignant otitis externa
d. Otomycosis

364. A child presents with ear infection with foul smelling discharge. On futher exploration a small perforation is found in the pars flaccida of the tympanic membrane. Most appropriate next step in the management would be:

a. Tympanoplasty
b. Topical antibiotics
c. I.V antibiotics
d. Mastoid exploration

353. d	354. a	355. b	356. a	357. b	358. a	359. d	360. b	361. a	362. a
363. b	364. d								

365. 25 yrs old ramesh presented with irregular fever having one or more peaks in a day,headache and general weakness. Local examination reveals tenderness over mastoid. External compression of jugular vein results in no rise in CSF,patient was suffering from:

a. Lateral Sinus Thrombophlebitis
b. Otitic Hydrocephalus
c. Subacute Mastoiditis
d. Labyrinthine Fistula

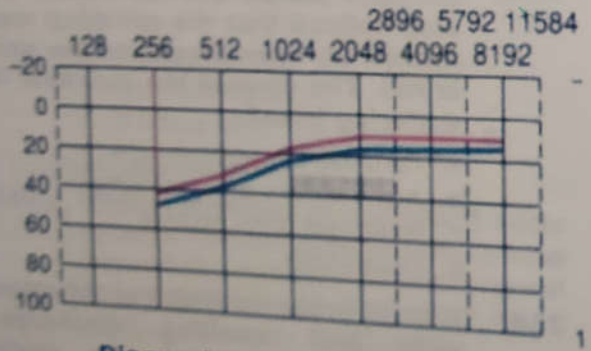
366. "Invagination of TM from attic part of par-tensa is form of retraction pocket" is?

a. Ruedi's theory
b. Wittmaack's theory
c. Habermann's theory
d. Sade's theory

367. All of the given features suggest unsafe CSOM except:

a. Profuse discharge
b. Fleshy polyp
c. Mixed deafness
d. Attic perforation

368. Study the audiogram



Diagnosis is?

a. CSOM
b. Otosclerosis
c. Noise induced hearing loss.
d. Meniere's disease

369. In monoaural displacusis the lesion is in the:

a. Cochlea
b. Auditary nerve
c. Brain stem
d. Cerebrum

370. 35 years old male presents with sensory deafness since 1 year, vertigo since 6 months and tinnitus for last week. On tuning fork test weber was lateralised to normal ear and rinne test was positive.Patient is suffering from:

a. Meniere disease
b. Otosclerosis
c. Lermoyez syndrome
d. Lateral sinus thrombophlebitis

371. Etiology for pulsatile tinnitus includes the followings except:

a. Arteriovenous malformation of neck
b. Otosclerosis
c. Glomus jugulare tumors
d. Hyperthyroidism

372. Gelle's test is for

a. Otosclerosis
b. NIHL
c. Sensorineural deafness
d. None

373. Carhart's notch in audiometery is seen in:

a. Ocular discontinuity
b. Haemotympanum
c. Otomycosis
d. Otosclerosis

374. Acoustic neuroma causes the following except:

a. Vertigo
b. Ptosis
c. Unilateral deafness
d. Loss of corneal reflex

375. In a patient of facial nerve injury ---- Schirmer's test shows decresed lacrimation, taste sensation is impaired and stapedial reflex is absent. Where is the level of injury?

a. Labyrinthine segment of facial nerve
b. Horizontal segment of facial nerve
c. Extratemporal part of facial nerve
d. Vertical segment of facial nerve

365. a	366. a	367. a	368. d	369. a	370. c	371. b	372. a	373. d	374. b	375. a

376. The most common site of origin of Acoustic neuroma is

a. Superior vestibular division of 8th nerve
b. Inferior vestibular division of 8th nerve
c. Cochlear nerve
d. Facial nerve

377. All are true about retrocochlear hearing loss except

a. Tone decay is faster
b. Recruitment is present
c. Roll over phenomenon is present
d. Poor speech discrimination score

378. All are characteristic features of superior semicircular canal dehiscence except

a. Third window phenomenon
b. Sensorineural hearing loss on audiometry
c. Tullio's phenomenon
d. Vestibular evoked myogenic potential is a useful investigation

379. A Patient has developed Sudden Sensorineural Hearing loss on Right side. What all can be part of management of this patient except

a. Oral steroids
b. Caroverine
c. Hyperbaric oxygen therapy
d. Transtympanic injection of Dexamethasone

380. All are clinically applicable statements to glomus Jugulare except

a. Intralesional Bleomycin is standard therapy
b. Erosion of caroticojugular spine
c. Cell balls of Zellballen on histopathology
d. Brown sign on pneumatic otoscopy

381. Which is not found on the medial wall of middle ear

a. Processus Cochleariformis
b. Facial Recess
c. Secondary tympanic membrane
d. Subiculum

383. A patient of bell's palsy shows no improvement with 3 weeks of steroid therapy. His electroneuronography reveals no significant facial nerve degeneration. What should be the next step in the management

a. Acyclovir should be added to treatment
b. Continue with steroids and repeat assesment
c. Facial nerve decompression
d. Transtympanic dexamethasone

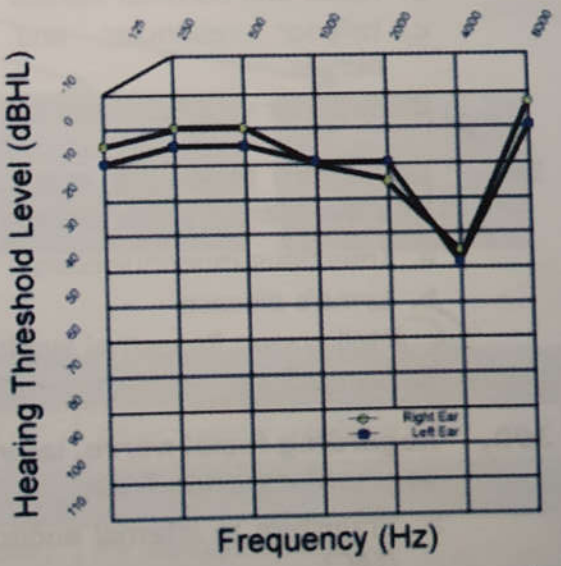
384. The best tool for hearing screening for NICU or high risk babies

a. OAE
b. AABR
c. ECOG
d. Impedance Audiometry

384. What is true about auditory neuropathy

a. Tympanometry normal BERA normal
b. OAE abnormal BERA normal
c. OAE normal BERA abnormal
d. Tympanometry abnormal BERA abnormal

385. Notch in audiogram shows



a. Noise induced hearing loss (NIHL)
b. A frequency of 4000 Hz causes more damage than lower or higher frequencies.
c. Meniere's disease
d. Sudden hearing loss

376. b	377. b	378. b	379. b	380. a	381. b	382. c	383. b	384. c	385. a

386. The single most important prognostic factor for eventual recovery of facial nerve function is

a. Presence of voluntary movement
b. Less than a 2.0 mA difference on nerve excitability testing, relative to the unparalyzed side
c. Greater than a 2.0 mA difference on nerve excitability testing, relative to the unparalyzed side
d. An intact stapedius reflex on topognostic testing

387. All the following are true about Ramsay Hunt syndrome except:

a. It has viral etiology
b. Involves VII nerve
c. Involves VIII nerve
d. Results of spontaneous recovery are excellent.

388. In the internal auditory canal, the vertical crest (Bill's bar) marks a plane between:

a. Superior and inferior vestibular nerves
b. Facial and cochlear nerves
c. Inferior vestibular and singular nerves
d. Superior vestibular and facial nerves

389. All of the following are causes of bilateral facial palsy except

a. Infectious mononucleosis
b. Lyme's disease
c. Melkersson Rosenthal syndrome
d. Sarcoidosis

390. Regarding facial nerve, labyrinthine segment extends from:

a. Brainstem to internal auditory canal (IAC)
b. Meatal foramen of the IAC to the fundus of IAC
c. Fundus of IAC to geniculate ganglion
d. Geniculate ganglion to the second genu

391. The nervus intermedius (of Wrisberg) carries:

a. Special visceral efferent fibers, whose cell bodies are located in the geniculate ganglion, and which project to the nucleus tractus solitarius
b. General sensory afferents terminating in the spinal trigeminal tract
c. Parasympathetic general visceral efferents to the salivary and lacrimal glands, as well as special visceral afferent fibers from the chorda and general sensory efferents from the externalauditory canal and postauricular area
d. Corticobulbar fibers originating in the somatomotorcortex

392. Acoustic neuroma arise from:

a. Superior vestibular nerve
b. Inferior vestibular nerve
c. Cochlear nerve
d. Facial nerve

393. All of the following are true about lasers in ENT except

a. Argon and KTP laser are visible lasers where as CO2 laser and Nd YAG lasers are invisible
b. CO2 laser is the most frequently used laser in ENT surgery
c. Silicon Endotracheal tube wrapped with metallic foil should be used for laser assisted laryngeal surgeries
d. CO2 laser can pass through the flexible endoscopes

394. Structure not seen in bronchoscopy?

a. Vocal cords
b. Trachea
c. First segmental division of bronchi
d. Subcarinal lymph nodes

386. a	387. d	388. d	389. c	390. c	391. c	392. a	393. d	394. d

242. A. Vth nerve

Cranial nerve involvement in acoustic neuroma.

Vth nerve

- This is the earliest nerve to be involved
- There is reduced corneal sensitivity, numbness or par aesthesia of face.

243. A. Cortical mastoidectomy

Myringoplasty

It is an operation in which reconstructive procedure is limited to repair of tympanic membrane perforation.

Tympanoplasty

It is an operation to eradicate disease in the middle ear and to reconstruct the hearing mechanism without mastoid surgery, with or without tympanic membrane grafting.

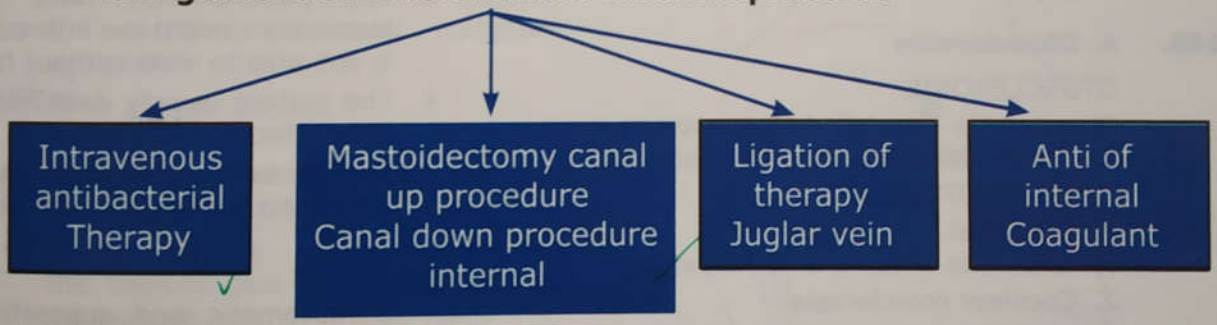
This means ossicular reconstruction only or ossicular reconstruction with myringoplasty.

Cortical Mastoidectomy (Simple Mastoidectomy or Schwartz Operation)

It is an exenteration of all accessible mastoid air cells preserving the posterior meatal wall. Modified Radical Mastoidectomy It is an operation to eradicate disease of the attic and mastoid, both of which are exteriorised into the external auditory canal by removal of the posterior meatal and lateral attic walls. Tympanic membrane remnant, functioning ossicles and the reversible mucosa and function of the eustachian tube are preserved. These structures are necessary to reconstruct hearing mechanism at the time of surgery or in a 2nd stage operation.

244. C. Canal wall down mastoidectomy

Management of Lateral Sinus Thrombophlebitis


Intravenous antibacterial Therapy
Mastoidectomy canal up procedure Canal down procedure internal
Ligation of therapy Juglar vein
Anti of internal Coagulant

MASOIDECTOMY

Canal Wall Down	Canal Wall up
1. Bony tympanic annuals and much of ear canal are removed	Retain posterior wall intact
2. No risk of recurrent cholesteatoma	Risk of recurrent choolesteatoma
3. Advised for complicated cases /e.g. lateral sinus thromphlebitis)	For uncomplicated cases
4. Radical mastoidectomy modified Radical mastoidectomy	Simple mastoidectomy

245. C. Pulsatile tinnitus

MENIERE'S DISEASE

Meniere's disease, a disorder of inner ear where the endolymphatic system is distended.

2Cardinal symptoms of Minere's disease are:

- Episodic vertigo
- Fluctuating hearing loss
- Displacusis

- Tinnitus
- Sense of fullness or pressure

246. C Low frequency sensory neural deafness is often seen in pure tone audiogram

- Carharts' notch and schwartz's sign are seen in otosclerosis
- Decompression of endolymphatic sac (and not fallopian canal) is done in Menieres disease.
- Decompression of Fallopian canal is done in traumatic facial nerve palsy.
- Meniere's disease is associated with – SNHL which affects low frequencies first, followed by higher frequencies later. This is visible on pure tone audiogram.

247. D. Jugular venography

- MRI – gives soft tissue extent of tumor
- Magnetic Resonance Angiography shows compression of the carotid artery whereas magnetic resonance venography shows invasion of jugular bulb by the tumor.

248. A. Otosclerosis

OTOSCLEROSIS

Otosclerosis also called otospongiosis,is a primary disease of the bony labyrinth

TYPES OF OTOSCLEROSIS

1. Stapedial otosclerosis :Most common site :Fissula ante fenestram
2. Cochlear otosclerosis
3. Histologic otosclerosis;Asymptomatic

Symptoms	Signs
1. Hearing Loss	Tympanic membrane is quite normal Sometimes a reddish hue may be seen on the promontory through the tympanic membrane (Schwartze sign)
2. Paracusis willisii	Eustachian tube function is normal
3. Tinnitus	Tuning fork tests show negative Rinne
4. Vertigo	Weber test will be laterised to the ear with greater conductive loss.

249. D. Gentamicin.

OTOSCLEROSIS

TREATMENT

- Sodium fluoride hasten the maturity of active focus and arrest further cochlear loss.
- Stapedectomy is the treatment of choice.

250. D. Vestibular neuronitis.

Vestibular Neuronitis

Essentials of Diagnosis

- Vertigo lasting days after an upper respiratory infection.
- No hearing loss
- No other neurologic sign or symptoms

Proposed etiologies

- Viral infection
- Vascular occlusion
- Immunologic mechanisms.

Symptoms and Signs

- Sudden onset of vertigo with nausea and vomiting.
- Normal hearing
- Normal neurologic exam.
- The patient may have postural instability toward the injured ear but is still able to walk without falling.
- The patient usually does not have a headache.
- Spontaneous nystagmus characteristic of an acute peripheral vestibular injury.

Treatment

- Symptomatic and supportive care during the acute phase of the illness.
- Vestibular suppressants
- Antiemetics

251. D. Presbycusis.

TINNITUS

Tinnitus is a symptom that is defined as any sound perceived by the patient when no external source of the sound exists.

It is generally divided into two categories, objective and subjective.

- Objective tinnitus is infrequent and is audible to the examiner.
- Subjective tinnitus, much more common than objective tinnitus, is not audible to the examiner.

A. Objective tinnitus may be caused by vascular, neurologic, or eustachian tube disorders.

1. Vascular disorders may cause pulsatile tinnitus by generating turbulent flow in arterial or venous vessels in the neck, cranial vault, or temporal bone. Vascular disorders that may cause objective tinnitus include venous hums, arterial bruits, arteriovenous malformations and shunts, aneurysms, aberrant vessels, and vascular neoplasms.
2. Neurologic disorders that cause objective tinnitus include palatal myoclonus and idiopathic stapedius and tensor tympani muscle spasm.

Palatomyoclonus is an uncommon disorder characterized by an irregular, rapid, clicking sound.

252. D. Tenderness

Symptoms and Signs of Surgical Coalescent Mastoiditis

Symptoms:

- Persistence of aural discharge for more than 3 weeks (most common)
- Pain localized deep in or behind the ear(the next most common symptom)

Signs:

A.Tenderness

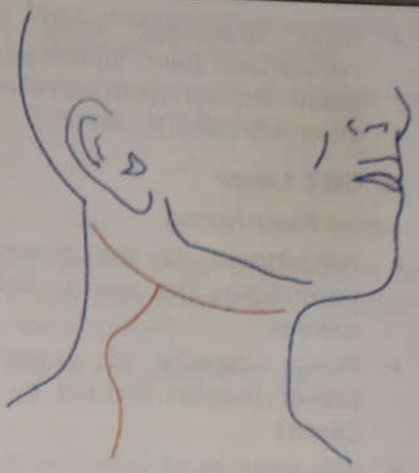
- Most consistent physical sign of coalescent mastoiditis.
- Tenderness is greatest where the trapped pus is nearest to the periosteum.
- Within few days of otitis media,, tenderness may be normal but after many weeks slight tenderness can be pathological

253. C. Hockey-stick

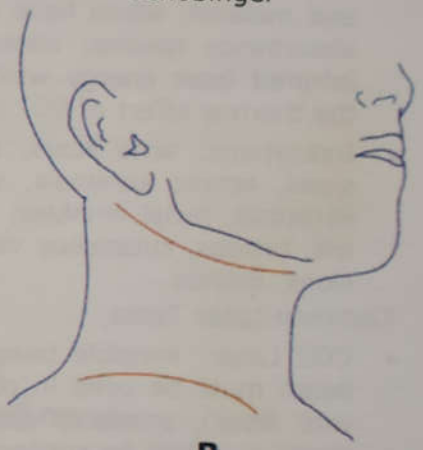
Incision used in radical neck dissection will depend on the incision being used to remove the primary growth.

Commonly, the incisions used are:

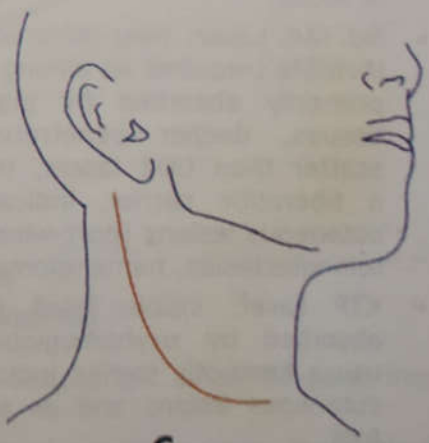
(i) Schobinger
(ii) Mc Fee
(iii) Hockey-stick
(iv) Extensions from Gluck-Sorenson's incision, used for laryngectomy with neck dissection



A
Schobinger



B
Mc Fee



C
Hockey-stick

254. A. Petrous Apicitis

Petrous Apicitis

- Pathophysiology: extension of infection into the air cell tracts around the labyrinthine capsule

- SSx: Gradenigo triad (otorrhea, retroorbital pain, diplopia [abducens palsy occurs from involvement of Dorello's canal]), fever

215. A. CO2 Laser

Laser Resurfacing

- Adjustment of the power (watts) determines the energy delivered to tissues
- Power density is determined by power (watts) divided by spot size (area)
- The concept of selective thermolysis is determined by the absorbance of the skin's constituents, specifically the chromophores,oxyhemoglobin, and melanin, which have their own absorbance spectra; water absorbs infrared laser energy which causes the thermal effect of CO2 lasers
- Indications: acne scars, scar revisions, actinic keratosis, seborrheic keratosis, facial wrinkles, rhinophyma, tattoos, cutaneous vascular lesions, keloids

Common Laser Types

- CO2 Laser: invisible beam (aiming beam must be used in conjunction with laser), primarily absorbed by water, excellent for cutting, coagulation, or ablating (depending on area of focus)
- Nd:YAG Laser: near-infrared beam, invisible (requires an aiming beam), primarily absorbed by pigmented tissues, deeper penetration,more scatter than CO2 lasers, may use a fiberoptic carrier, indicated for cutaneous lesions (port-wine stains, telangiectasias, hemangiomas,etc)
- KTP Laser: visible laser, primarily absorbed by oxyhemoglobin, may use a fiberoptic carrier, indicated for cutaneous lesions and as a cutting tool
- Argon Laser: visible, broad-band blue light, primarily absorbed by oxyhemoglobin, depth of penetration between CO2 and Nd:YAG lasers, similar indications as the Nd:YAG laser

256. Which of the following does not form Waldeyer's ring?

a. Palatine Tonsils
b. Adenoids
c. Jugulodigastric node
d. Lateral pharyngeal bands.

256. C. Jugulodigastric node

Waldeyer's ring is formed by aggregated collections of lymphoid tissues distributed in the pharyngeal mucosa.

It is formed by:

- Adenoids
- Palatine tonsils
- Lingual tonsils
- Tubal tonsils in the fossa of Rossenmuller
- Lateral pharyngeal bands
- Nodules in the posterior pharyngeal wall

257. B. Documented 7 infections in 1 year

Tonsillectomy and Adenoidectomy

Absolute Indications

- Tonsillar hyperplasia resulting in sleep disturbances or sleep apnea associated with cor pulmonale
- Suspected malignancy (unilateral tonsilar hypertrophy)
- Tonsillitis resulting in febrile convulsions (may require a Quincy tonsillectomy)
- Persistent or recurrent tonsillar hemorrhage
- Failure to thrive (not attributable to other causes)

Relative Indications

- Recurrent acute tonsillitis (documented 7 infections in 1 year, 5 infections in 2 years, or 3 infections in 3 years or >2 weeks of missed school or work in 1 year)
- peritonsillar abscess
- chronic tonsillitis with persistent sore throat, halitosis, or cervical adenitis
- swallowing difficulties (not attributable to other causes)
- tonsillolithiasis
- orofacial or dental disorders (results in a narrow upper airway)
- Streptococcus carrier unresponsive to medical management

- recurrent or chronic otitis media

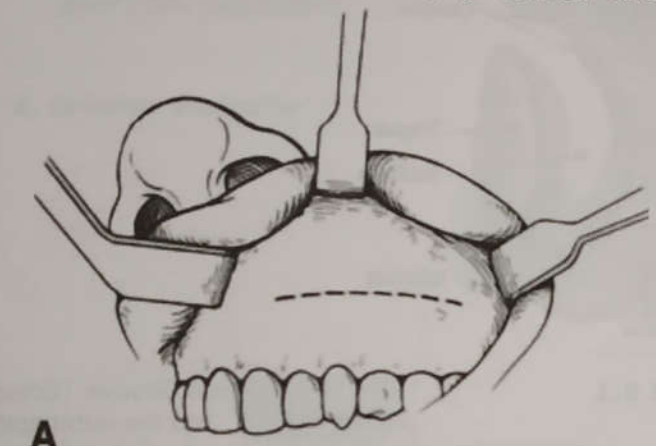
Contraindications

- leukemias, hemophilias, agranulocytosis, uncontrolled systemic disease (diabetes, tuberculosis)
- Relative Contraindications: cleft palate, acute infection

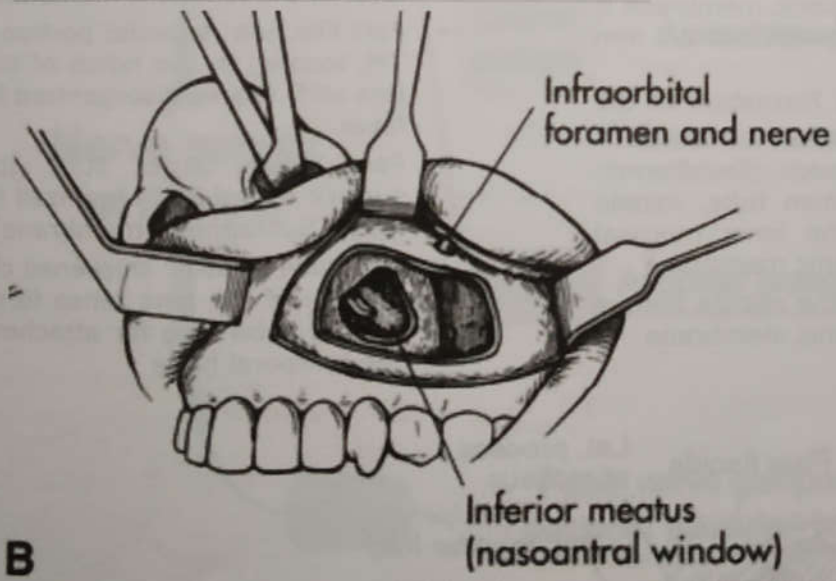
258. D. Gingivobuccal sulcus

Caldwell-Luc procedure

- Intraoral approach to anterior maxillary wall from canine fossa above gum line, the diseased mucosa is removed from the maxillary sinus, also allows for a middle meatal antrostomy, and ethmoidectomy (transantral ethmoidectomy)
- The incision is made in the gingivobuccal sulcus, above the canine fossa



A

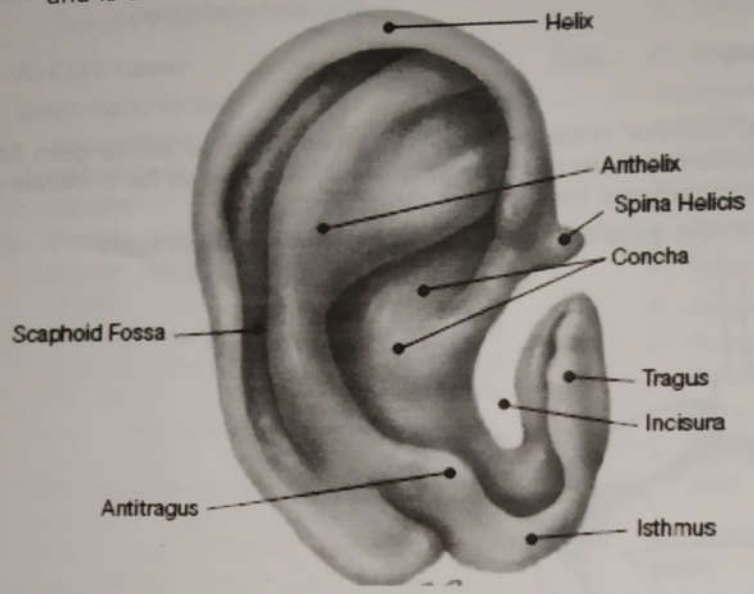


B

- Indications: sinus disease not obtainable by endoscopic sinus surgery, inspissated secretions, neo-ossification, cystic fibrosis
- Advantages: allows adequate exposure of inside of maxillary sinus, favorable intraoral incision
- Disadvantages:
  - Nonfunctional
  - Damages mucosa (decreased cilia count, increased fibrosis and bone growth)
  - Risk of infraorbital nerve and dental injury (hypoesthesia to teeth and lip)
  - Transantral ethmoidectomy does not allow exposure anterior to the ethmoidal bull

259. D. Incisura terminalis

- The lateral one-third of the EAC comprises a continuation of the cartilage of the pinna and is deficient superiorly at the incisura terminalis



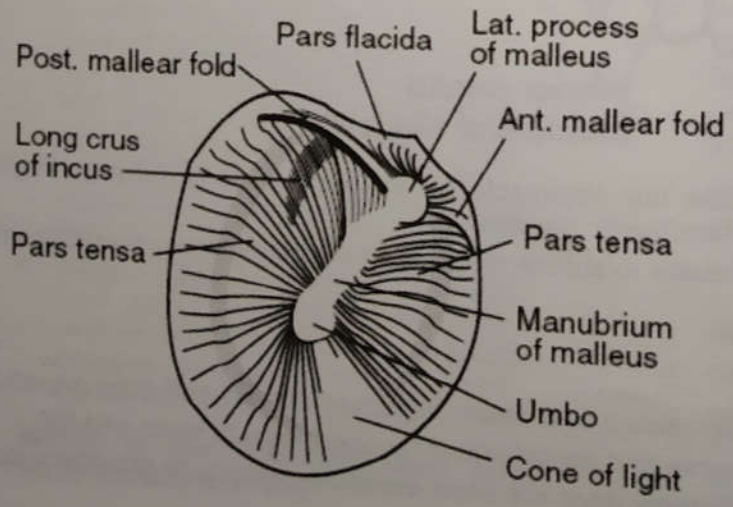
260. A. 10 mm tall, 9 mm wide and 0.1 mm thick

- Dimension of tympanic membrane is 10 mm tall, 9 mm wide and 0.1 mm thick

Embryology and the Formation of the Three Layers

1. First Branchial Pouch (Endoderm): forms the eustachian tube, middle ear space, and the inner mucosal layer of the tympanic membrane
2. Mesoderm: forms the middle fibrous layer of the tympanic membrane
3. First Pharyngeal Groove (Ectoderm): forms the EAC and the outer epidermal layer of the tympanic membrane

- Pars Flaccida: superior portion of the TM, located in the notch of Rivinus, less stiff, sparse disorganized fibrous layer
- Pars Tensa: larger, stiff, vibrating surface of the TM, organized fibrous layer (Schrapnell's membrane)
- Annulus Fibrosus: thickened circumference of the pars tensa forming a fibrous outer ring for attachment to the temporal bone



261 A. Tympanic membrane

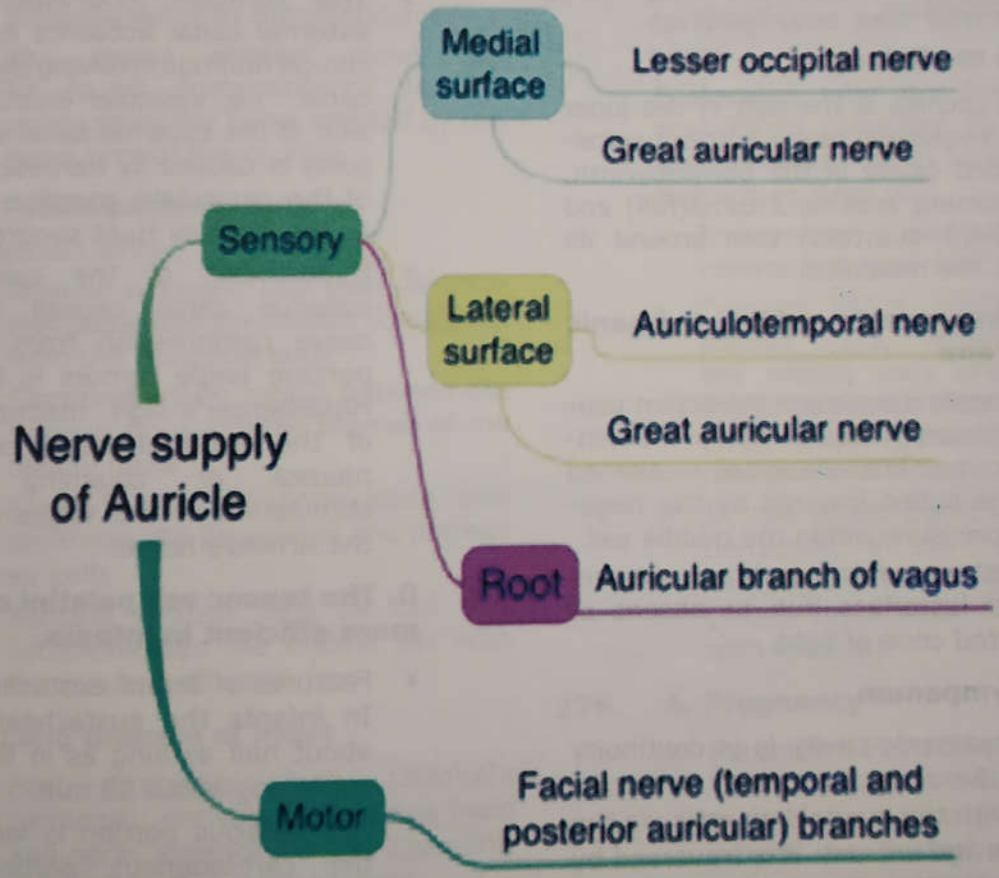
Explanation:

- The 1st cleft grows and meet 1st pouch medially to from the tympanic membrane.
- So the tympanic membrane is made from all the 3 layers, outer epithelial layer from ectoderm and inner endothelial layer from endoderm and in between these is the fibrous layer from mesoderm.

262. A. Tendon of tensor tympani

- Processus cochleariformis is a hook like structure present antero-superiorly on the medial wall of middle ear.
- The tensor tympani muscle origination from a canal in the anterior wall of middle ear runs medially where its tendon winds around the processus cochleariformis and then turns laterally to get attached to the neck of malleus.

263. A. Greater auricular



264. A. Bat ear

- Prominent ear, otapostasis or bat ear is an abnormally protruding human ear. It may be unilateral or bilateral.
- The concha is large with poorly developed antihelix and scapha.
- It is the result of malformation of cartilage during primitive ear development in intrauterine life.

265. C. Vary in both thickness and width in a base-toapex pattern within the cochlea

- The size of the organ of Corti varies gradually from base to apex: the

sensory organ at the base is smaller, while the organ in the apical region is larger

- The basilar and tectorial membranes also vary in width and thickness along the length of the cochlea:they are thicker and wider toward the apex and thinner and narrower in the base
- The tectorial membrane is a gelatinous membrane whose undersurface firmly anchors the tips of the tall rows of outer hair cells
- This anatomical coupling is crucial for deflection of the stereociliary bundles and is required for mechanosensory transduction.

266. C. 2 ¾ modiolus

- The cochlea is the part of the inner ear involved in hearing. It is a spiral-shaped cavity in the bonylabyrinth, in humans making 2 turns(full) and a 3/4(3 quarters) turn around its axis, the modiolus.

267. D. Shiny pearly white tympanic membrane

- Tympanic membrane retraction usually occurs when a portion of the tympanic membranebecomes weakened and is pulled inwards by the negative pressure within the middle ear.

Retracted tympanic membrane appears dull and lusterless due to absent or interrupted cone of light.

268. D. Protympanum

- The tympanic cavity is in continuity with the eustachian tube anteriorly and with the mastoid air cells via the aditus and antrum. It is traversed by the ossicular chain and is lined with a mucosal epithelium.
- Planes extended from the tympanic annulus subdivide the tympanic cavity into a mesotympanum, hypotympanum, protympanum, and posterior tympanic cavity.
- The epitympanum lies above the plane of the anterior and posterior tympanic spines.
- Portion of middle ear around the tympanic orifice of Eustachian tube is protympanum

269. D. 10th cranial nerve

- Since it originates from branchial arch it is innervated by 5th, 7th, 9th and 10th cranial nerves. Auriculo temporal branch of the mandibular nerve innervates the anterior portion of the pinna, tragus, and the anterior wall of the external canal.
- The well of the concha and the posterior wall of the exterrnal canal receive innervation from the 7th, 9th, and 10th cranial nerves.
- This complex innervation of the external canal accounts for several clinical findings involving the external canal : i.e. vesicular eruption in the skin of the external canal with facial palsy is caused by herpetic infection of the geniculate ganglion is known as the Ramsay Hunt syndrome.
- Hypesthesia of the concha and external canal caused by facial nerve compression from cerebello pontine angle tumors is known as Hitselberger's sign. Instrumentation of the external canal can cause nausea or coughing through stimulation of the vagus nerve via the Arnold's nerve.

270. D. The tensor veli palatini muscle is more efficient in infants.

- Features of Infant eustachean tube: In infants the eustachean tube is about half as long as in the adults, averaging about 18 mm.
- The osseous portion is longer than the cartilagenous portion. It is shorter, straighter, and wider than that of adults.
- The tensor veli palatini muscle is less efficient in infants. The tube is also mostly horizontal in infants.
- Hence infants are more prone for middle ear infections arising from the eustachean tube.

271. C. Subiculum above and ponticulus below

- The medial wall (the surgical "floor" of the middle ear) features three depressions: the sinus tympani, oval window niche, and round window niche.
- The sinus tympani is defined by the ponticulus superiorly, the subiculum inferiorly, the mastoid segment of the facial nerve laterally, and the posterior semicircular canal medially; there is substantial variability in the posterior extension (surgical "depth") of the sinus tympani, ranging from "shallow" to "deep."
- The oval window niche, occupied by the stapes footplate, is located anterosuperior to the ponticulus.
- The round window niche can be found posteroinferior to the promontory,the bulge created by the basal turn of the cochlea.

272. A. Petrosquamous suture

Mastoid Cavity

- Tegmen tympani: thin plate of bone that separates the middle fossa dura from the temporal bone
- Sinodural angle: region between the sigmoid sinus and the tegmen of the middle fossa
- Korner's septum: bony plate that separates the squamous and petrous air cells
- Mastoid antrum: first air cell that communicates the middle ear with the mastoid air cells

273. C. Long process of incus

1. First Branchial Arch (Meckel's cartilage): derives the malleus head and neck, anterior malleal ligament, incus body and short process
2. Second Branchial Arch (Reichert's cartilage): derives the manubrium of the malleus, long process and lenticular process of the incus, stapes (except vestibular part of footplate)ossicles reach their adult size at birth.
3. Most susceptible ossicle in chronic suppurative otitis media is Long process of incus

274. C. Glossopharyngeal nerve and sympathetic fibres.

CN IX

- Jacobson's nerve, with Arnold's nerve forms tympanic plexus on the promontory.
- Jacobson's Nerve: tympanic branch of the glossopharyngeal nerve located on the promontory
- Arnold's nerve: auricular branch of the vagus nerve, traverses the tympomastoid fissure to innervte the posterior aspect of the EAC auriculotemporal nerve (sympathetic fibers)

275. D. Pseudostratified columnar in cartilaginous part and columnar in bony.

Eustachian tube is lined by Pseudostratified columnar in cartilaginous part and columnar in bony.

Eustachian Tube (ET)

- Embryology: derived from the ventral first branchial pouch
- Consists of a posterior osseous portion (1/3, remains open to the middle ear) and an anterior membranous-cartilaginous portion (2/3, mobile portion) ends in the nasopharynx (torus tubaris)
- In the adult the ET is 45° from horizontal; in the infant the ET is shorter and is 10° from horizontal (more susceptible to regurgitation with feeding)

276. A. Pregnancy

- Patulous Eustachian tube, also known as patent Eustachian tube, is the name of a physical disorder where the Eustachian tube, which is normally closed, instead stays intermittently open. When this occurs, the patient experiences autophony, the hearing of self-generated sounds
- Patulous Eustachian tube is a physical disorder. The exact causes may vary depending on the person. Weight loss is a commonly cited cause of the disorder due to the nature of the

Eustachian tube itself. Fatty tissues hold the tube closed most of the time in healthy individuals. When circumstances cause overall body fat to diminish, the tissue surrounding the Eustachian tube shrinks and this function is disrupted.

- Activities and substances which dehydrate the body have the same effect and are also possible causes of patulous Eustachian tube. Examples are stimulants (including caffeine) and exercise. Exercise may have a more short-term effect than caffeine or weight loss in this regard.
- Pregnancy can also be a cause of patulous Eustachian tube due to the effects of pregnancy hormones on surface tension and mucous in the respiratory system.

277. A. Footplate of the stapes

INNER EAR

- Bony cochlea resembles snail & forms the anterior part of the labyrinth.
- Its wound around the central axis called modiolus.
- It contains sensory receptor organ of corti.
- Vestibule is the central part of the labyrinth.
- Its lateral wall opens into the middle ear at oval window, closed by the footplate of the stapes.
- Three semicircular opens into the posterior wall.
- Medial wall is related to the internal acoustic meatus.

278. D. Anterior inferior cerebellar artery

Labyrinthine Vessels

- The majority of the blood supply to the membranous labyrinth stems from the labyrinthine artery, a branch of the AICA.
- The subarcuate artery arises either as a branch of the labyrinthine artery, or of the AICA, or as multiple branches of both; it passes within the arch of the superior semicircular canal.

279. D. 28th wk.

	Pinnae	Meatus	Middle ear	Vestibule	Cochlea
Begins	6	8	3	3	3
Completes	20	28	30	20	20

280. B. Impedance audiometry

Tests of hearing can be broadly Classified as

Subjective tests	Objective Tests

Where response depends on the patients eg
• Tuning fork tests
• Pure tone audiometry
  • Speech audiometry
  • Speech reception threshold
• Speech discrimination score
• Beksey audiometry
• ABLB
• Short increment sensitivity index
• Tone decay test
	Where response is automatically recorded
	• Impedance audiometry
	• Stapedial/acoustic reflex
	  • Evoked response audiometry
	  • Electro cochleography
	• Auditory brainstem response
	• Otoacoustic emissions

281. D. Presence of active otosclerotic foci

Indications for stapedectomy:

1. Conductive deafness due to fixation of stapes.
2. Air bone gap of atleast 40 dB.
3. Presence of Carhart's notch in the audiogram of a patient with conductive deafness.
4. Good cochlear reserve as assessed by the presence of good speech discrimination.

Contraindications for stapedectomy:

1. Poor general condition of the patient.
2. Only hearing ear.
3. Poor cochlear reserve as shown by poor speech discrimination scores
4. Patient with tinnitus and vertigo
5. Presence of active otosclerotic foci (otospongiosis) as evidenced by a positive flemmingo sign.

282. B. As

Curves of impedence audiometry:

Type of curve	Condition
A curve (Normal peak height and pressure.	Normal Eustachian tube obstruction
As curve (It is also a variant of normal tympanogram but may be shallow)	Otosclerosis Tumors of middle ear Fixed malleus syndrome Tympanosclerosis
Ad curve (Variant of normal with high peak)	Ossicular discontinuity Post Stapedectomy Monometric ear drum
B curve (Flat or dome shaped curve) Indicating lack of compliance	Fluid in middle ear Secretory otitis media Tympanic membrane perforation Grommet in ear
C curve (negative peak pressure)	Retracted tympanic membrane Faulty function of Eustachian tube/ Eustachian tube obstruction

283. D. 61-80 db

Hearing loss and difficulty in hearing speech

Hearing threshold in better ear (average of 500, 1000, 2000 Hz)	Degree of impairment (WHO classification)
0 – 25	Not significant
26 – 40	Mild
41 – 60	Moderate
61 – 80	Severe
Above 80	Profound

284. B. Poster superior

- In syringing (done to remove impacted wax) pinna is pulled upwards and backwards and a stream of water from the ear syringe is directed along the poster superior wall of the meatus.

285. B. 5-7 years of age

- Microtia – Here the patient presents at birth with obvious auricular malformations

Classification

Grade – I	Grade – II	Grade – III
Mild deformity like Low set ear (i.e. inferiorly angled auricular cartilage) Cupped ear (Has a deep conchal bowl)	All pinna structures are present but tissue deficiency and significant deformaity exist	Also known as classic microtia or peanut ear. There is no recognizable landmark of auricle. It includes anotia also

Treatment:

- Classical treatment involves auricular reconstruction in multiple stages. Patients undergo observation until the age of 5 years to allow for growth of rib cartilage which is harvested for reconstruction.
- This approach offers the benefit of reconstruction with autogenous material which ultimately requires little or no maintenance. Typically reconstruction occurs in 4 stages.

286. A. Brainsterm evoked response

- Brain stem evoked response audiometry, Auditory brain stem response, ABR audiometry, BAER (Brainstem auditory evoked response audiometry).
- Even though BERA provides information regarding auditory function and sensitivity, it is not a substitute for other methods of audiological evaluation. It should be always viewed in conjunction with other audiological investigations.
- In auditory brain stem evoked response audiometry, the impulses are generated by the brain stem. These impulses when recorded contains a series of peaks and troughs. The positive peaks (vortex positive) are referred to by the Roman numerals I - VII.

These peaks are considered to originate from the following anatomical sites:

1. Cochlear nerves - waves I and II
2. Cochlear nucleus - wave III
3. Superior olivary complex - wave IV
4. Nulclei of lateral lemniscus - wave V
5. Inferior colliculus - waves VI and VII

These peaks occur in most readable form in response to click stimuli over a period of 1 - 10 milliseconds after the stimulus in normal hearing adults.

287. A. 10-40 dB

Average hearing loss seen in different lesions of conductive apparatus

1. Complete obstruction of ear canal : 30dB
2. Perforation of tympanic membrane : 10 - 40dB (It varies and is directly proportional to the size of perforation)
3. Ossicular interruption with intact drum : 54dB
4. Ossicular interruption with perforation : 38dB
5. Closure of oval window : 60dB

288. C. 19 mm

HEAD MIRROR

- CONCAVE MIRROR
- FOCAL LENGTH 25 CMS
- DIAMETER 89 MM
- HOLE D 19 MM

289. B. Lobule.

- More recently it has been suggested that the second arch contributes approximately to 85% of the auricle. The lobule is the last component of the pinna to develop.
- The auricle begins to develop in the anterior neck region, then it is postulated to migrate dorsally and cephalad as the mandible begins to develop during the second and third months of gestation. By the 5th month of gestation the pinna lies in its adult location.
- The external auditory canal begins to develop from the first branchial cleft during the first two months of gestation.
- During the first month a solid epithelial cell rest forms in this area and is in contact with the endoderm of the first pharyngeal pouch. There is an intervening mesoderm preventing direct contact between the ectoderm and endoderm.

290. B. Frequency-dependent

Sound can be transmitted from the ear canal to the cochlea by two mechanisms: ossicular and acoustic coupling

Ossicular coupling

- Ossicular coupling is the sound pressure gain that occurs through the tympanic membrane and the ossicular chain.
- The pressure gain that results from ossicular coupling in normal ears is frequency-dependent, and its magnitude is less than traditionally believed. The mean middle ear gain is about 20 dB between 250 and 500 Hz, reaches a maximum of about 25 dB around 1 kHz, and then decreases at about 6 dB per octave at frequencies above 1 kHz

Acoustic coupling

- Acoustic coupling is the difference in the sound pressure that is acting directly on the oval and round windows.

291.

292.

293.

294.

295.

- In normal ears, acoustic coupling is negligible, but it may play a significant role in diseased and reconstructed ears.
- 1.3 : 1
- 21: 1 14:1
- 18:1
- 90 mm^3 ------55 mm^3

291. C. Malleus

Anatomy of middle ear
Boundaries of Prussak's space: Superior – Fibers of lateral malleolar fold Inferior –Malleus Lateral – Shrapnell's membrane

292. B. Is secreted by Stria vascularis

- The upper portion of the spiral ligament contains numerous capillary loops and small blood vessels, and is termed the stria vascularis.
- It produces endolymph for the scala media, one of the three fluid-filled compartments of the cochlea.
- The stria is a somewhat stratified epithelium containing primarily three cell types (marginal, intermediate, and basal cells) and intraepithelial capillaries.
- The stria vascularis also contains pericyte, melanocyte, and endothelial cells

293. D. Synovial joint

- The head of malleus articulates with the body of incus. This incudomalleolar joint is a saddle type of synovial joint.
- The long process of incus ends in a lentiform nodule. This lentifoem nodule of incus articulates with the head of stapes. This incudostapedial joint is a ball and socket type of synovial joint.

294. A. +80 mv

- The endolymph is rich in K^+ which leads to the development of an endolympatic potential of + 80 to 85 mV.

295. C. Posterior canal

Horizontal canals	Horizontal
Superior canal.	Rotatory
Posterior canal	Vertical

296. C. 4000–6000 Hz

Resonance Frequencies: natural frequencies that vibrate a mass with the least amount of force

- Concha: 4000–6000 Hz
- EAC: 2000–3000 Hz (primary frequencies of speech)
- TM: 800–1600 Hz
- Ossicles: 500–2000 Hz
- Middle Ear: 800 Hz

297. B. Hypoesthesia of the posterior meatal wall

- Hitzelberger's sign is seen in acoustic neuroma.
- It occurs due to involvement of the 7th cranial nerve.
- There is early involvement of the sensory fibers which causes hypoesthesia of the posterior meatal wall.

298. C. Semicircular canals

The 5 Receptors of Balance (per Labyrinth) vestibular receptors respond to acceleration (linear and angular changes) only, not velocity

- Otolithic Organs (2): linear accelerometers, oriented vertically in the erect position; unlike the crista of the SSCs the maculae of the otolithic organ have an extremely complex array of stereocilia;
- Semicircular Canals (3): rotational accelerators (sense turning motion), the cristae of the SSC are arranged in an orthogonal pattern that creates functional pairs (right and left horizontal SSCs, right posterior and left superior SSCs, right superior and left posterior SSCs) in that increased output from one canal results in decreased output from its paired canal thus creating a "push-pull" mechanism that enhances the sensitivity of the system;

299. D. Associated with frequent ear discharge

KERATOSIS OBTURANS
1.Growth Abnormality
2.Age 5-20
3.Management:Canaloplasty

	Keratosis obturans	External ear canal cholesteatoma
Age	Young adult	Elderly
Systemic associations	Sinusitis, bronchiectasis	None
Pain	Acute, severe	Chronic, dull
Hearing loss	Moderate, conductive	Little or none
Otorrhoea	Rare	Frequent
Lateralization	Usually bilateral	Usually unilateral
Bony ersion	Circumferential	Localized
Organization of squames	Layered	Random
Mental skin*	Intact	Focal ulceration
Osteonecrosis*	Absent	Usually present

300. B. Otomycosis

- This kind of appearance is seen in otomycosis.
- This is the appearance of fungal mass in the EAC which appears as wet piece of paper.

301. C. Abnormal epithelial migration of skin of external auditory canal

- Keratosis obturans: is accumulation of desquamated keratin in the external auditory meatus.
- Keratosis obturans is postulated to occur due to abnormal epithelial migration of ear canal skin.
- The movement of the surface epithelium appears to be reversed in these patients. The ear canal appears to be widened.
- CT scan of temporal bones may reveal canal erosion and widening. There may be erosion of facial canal in some cases.

Management:
1. Surgical removal under G.A.
2. Canal plasty is helpful in recurrent cases

302. A. Ototoxicity

Ototoxic drugs
1. Aminoglycosides:
A. Vestibulotoxic drugs: damage hair cells of crista
Streptomycin , gentamicin, tobramycin
B. Cochleotoxic drugs: damage outer hair cells of cochlea (starting from basal turn to apex)- high frequency loss
Neomycin, kanamycin, amikacin
2. Loop diuretics: cause oedema of stria vascularis furosemide, ethacrynic acid
3. Analgesics: salicylates (aspirin)- indomethacin Ibuprofen
4. Antimalarials --quinine-chloroquine
5. Anticancer drugs : cisplatin carboplatin, Vincristine
6. Chelating agent: desferoxamine
7. Antibiotics:Vancomycin, erythromycin

Ototoxicity involves high frequencies more than the low frequencies. Therefore high frequency audiometry is useful in its diagnosis

303. B. Its angled at 45 degrees with horizontal at birth

- Eustachian tube is otherwise known as pharyngotympanic tube, middle ear ventilation tube. It is bony cartilagenous in nature.
- It connects the middle ear with the nasopharynx. In adults it lies at an angle of 45 degrees to the horizontal plane.
- In infants this inclination is about 10 degrees. In adults its length is 38mm. For descriptive purposes it can be divided into posterior 1/3 which is osseus in nature and anterior 2/3 which is cartilagenous in nature.
- This tube passes through sinus of Morgagni to enter the nasopharynx and opens 1.25 cm behind the posterior end of inferior turbinate.

- Usually the eustachean tube is closed; it opens during such actions like swallowing, yawning thus equalising the middle ear pressure.
- Active dilatation of the tube is induced by the tensor palati muscle. Closure of the tube has been attributed to passive reapproximation of tubal walls by extrinsic forces exerted by surrounding elastic fibres.

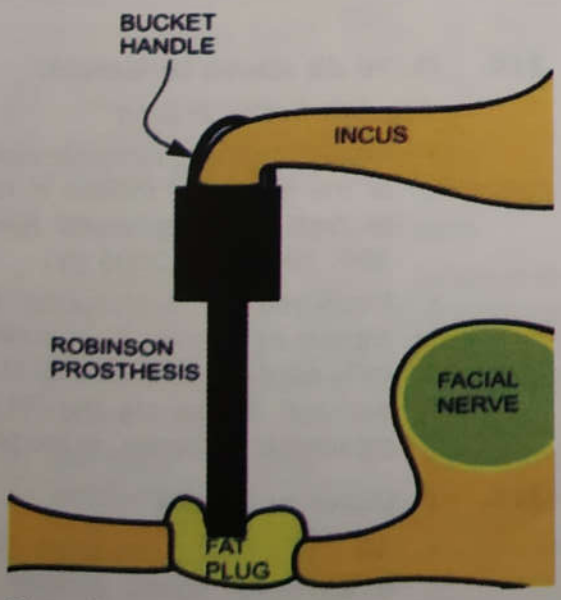
304. D. Carotid body tumour

- Lyre sign is an angiographic finding seen in carotid body tumour of the neck.
- There is splaying apart of internal and external carotid arteries on angiogram.

305. B. Rosen's incision

- Tympanomeatal flap is raised to expose the middle ear in endomeatal approach.
- Rosen's incision is used in the endomeatal approach for stapedectomy.
- It is also used for exploratory tympanotomy.

306. A. Otosclerosis



Stapedioplasty (see photograph)

- In this diagram, the stapes has been removed, and a small piece of fat from the ear lobe has been used to "plug" the oval window and prevent perilymph from leaking into the middle ear. Gelfoam, temporalis fascia, vein and tragal perichondrium have all been successfully used in stapedectomy.
- A Robinson stainless steel prosthesis is placed between the lenticular process of the incus and the fat plug in the oval window. The bucket handle of the prosthesis is rotated over the incus to prevent the prosthesis from slipping.

307. D. Rupture of tympanic membrane

Explanation:

- Old age (presbycusis) leads to SN hearing loss.
- Loud noise induced hearing loss is associated with pathological changes in cochlea leading to senorineural hearing loss.
- Noise trauma, presbycusis and otoxic drugs involve basal turns of cochlea first; thereby affect high frequency sounds early.
- Cochlear otosclerosis leads to sensory hearing loss.

308. A. Better heard

Explanation:

- The tuning fork tests are most commonly done with 512 Hz (or FPS, i.e. frequency per second) sound frequency producing forks because these are better heard.
- Tuning forks with frequency less than 512 have more of vibration sense and those with frequency above 512 danpen very fast because of which comparision is not possible.

309. D. Left sided conducted deafness

310. A Lateral semicircular canal

- Compression or rarefaction of the air in the external auditory canal excites nystagmus when there is an erosion of the otic capsule, so long as the labyrinth remains capable of functioning.
- Fistula test stimulates lateral semicircular canal

311. C. Congenital syphilis

False positive fistula test(Hennebert sign)	False negative fistula test
Congenital syphilis (here stapes footplate is hypermobile, so even small pressure changes in ear, cause excessive movement of stapes footplate & excessive stimulation of utricular macule)	In Dead ear (inner ear is damaged), there will be NO response even if a Perilymphatic fistula exists.
25% cases of Meneire's disease. (here in 25% cases of meniere's ,fibrous bands form connecting to utricular macule to stapes footplate)	Also seen when cholesteatoma covers the site of fistula & doesn't allow pressure changes to be transmits to labyrinth.

Tuning Fork Tests and Their Interpretation

Test	Normal	Conductive Deafness	N Deafness
Rinne	AC> BC (Rinne positive)	BC> AC (Rinne negative)	C>BC
Weber	Not laterised	Laterised to poorer ear	Laterised to better ear
ABC	Same as examiner's	Safe as examiner's	Reduced
Schwabach	Equal	Lengthened	Shortened

312. D. 500, 1000, and 2000 Hz

Pure Tone Average (PTA): average thresholds for the speech frequencies (500, 1000, and 2000 Hz); typically should be within 10 dB of the speech reception threshold

- Air-Bone Gap (ABG): decibel difference between bone and air conduction thresholds
- Speech Audiometry: utilizes spoken voice as a sound stimulus at selected intensities
- Speech Reception Threshold (SRT): lowest dB HL patient can repeat a spondee (2-syllable words with balanced accents) 50% of the time
- Speech Discrimination Score (SDS): percentage of phonetically balanced monosyllabic words (phonemes) repeated correctly after being presented at 20–40 dB SL above the SRT

313. D. Eustachian tube dysfunction.

TYMPANOMETRY

Types

A: normal peak between -150 and +50 daPa

A_S: "shallow" peak (reduced compliance), TM stiff, suggests otosclerosis, or tympanosclerosis

A_D: "deep" peak (hypercompliant), TM flaccid, suggests ossicular discontinuity or a monomeric TM

B: flat, no peak, nonmobile TM, suggests effusion, perforation, or an open pressure equalization tube

C: peak shifted to a more negative pressure (<-150), retracted TM, suggests eustachian tube dysfunction

314. D. 70 dB above threshold.

Acoustic Reflex Testing

- Acoustic Reflex: reflexive contraction of the stapedial muscle in response to high intensity sound (usually at 500, 1000, and 2000 Hz)
- Measured by introducing acoustic signals at varying frequencies (typically elicited at 70–100 dB SL) in one ear and measuring the TM motility (stapedial response) in the probe ear

315. B. Outer hair cells

- An otoacoustic emission (OAE) is a low-level sound emitted by the cochlea either spontaneously or evoked by an auditory stimulus.
- Specifically, OAEs provide information related to the function of the outer hair cells (OHC)

316. A. Rinne - Positive on the affected side

FEATURES OF CSOM

- Rinne - Negative on the affected side
- Weber - Lateralised to the good ear
- Absolute bone conduction test - Not reduced
- Pure Tone audiometry show conductive hearing loss.
- The hearing loss is invariably under 40 dB.

317. B. Malleus and foot plate of stapes present

Austine Kartush classification:

This classification uses middle ear osscicular status.

Four different groups have been identified:

Group A - Malleus and stapes present (commonly seen status) because of precarious vascularity of incus

Group B - Malleus and foot plate of stapes present

Group C - Malleus absent and stapes present

Group D - Malleus and stapes suprastructure absent

Kartush added three more classes as a modification of this scheme in include ossicular fixity even when all three ossicles are present.

O - Intact ossicular chain
E - Ossicular head fixation
F - Stapes fixation

318. B. Treacher Collin's syndrome

- Pendred's and Alport syndromes are associated with sensorineural deafness, while Treacher collin's and Crouzon's syndromes are associated with conductive deafness.
- Michael's aplasia is congenital malformation of inner ear manifesting as sensorineural hearing loss.

319. A Sensorineural deafness

- In Bing's test, occlusion of the external meatus increases the perception of a bone conducted sound if the test is positive. This is observed in normal individuals and in sensorineural deafness.
- The test is negative in conductive deafness where there is no change in bone conducted sounds when the meatus is occluded.
- In this question, there is increase in sound on compressing the tragus, which implies a positive Bing's.
- Adhesive otitis media, otosclerosis, and CSOM lead to conductive deafness where the test should be negative.
- Hence, the answer is sensorineural deafness where Bing's test is positive.

320. C. Removal of foreign body from the ear

Uses of Seigel's speculum

- Assess movement of tympanic membrane
- Introduce medicine into the middle ear
- To have a magnified view of ear pathology
- To assess vestibular function by fistula test

321. A. Does not require external stimulus, not present in all normal ears

Otoacoustic Emissions (OAE)

Types

- Spontaneous OAE: does not require external stimulus, not present in all normal ears
- Transiently Evoked OAE (Cochlear Echo): evoked by broad-band tones, indicated for hearing screening, present in most normal ears
- Stimulus Frequency OAE: evoked with a particular frequency (low-tone), present in most normal ears
- Distortion Product OAE: elicited by simultaneous application of 2 pure tone frequencies, indicated for hearing screening (sensitive to cochlear disorders), present in most normal ears and ears with a mild or moderate SNHL

322. D. Using pure tone audiometry

- The assessment of newborn hearing is now universal, which means that all neonates should be screened for hearing loss.
- In pure tone audiometry a tone is presented to the ear and the patient responds by raising his hand. It's a subjective test and depends on the patient's ability to understand and response to the sound and therefore cannot be used in mentally challenged, uncooperative individuals, neonates and infants.
- The screening can be done using either of the 2 tests which are:
  A. OAE-Otoacoustic emissions, which are low intensity sound produced by outer hair cells of the cochlea and can be detected by using microphones placed in the external auditory canal.
- Sedation does not affect OAE.
- Types are:
  - Spontaneous OAE – healthy individuals with hearing loss < 30 dB.
  - Evoked OAE – elicited by a sound stimulus and are of the following type:
  - Transient evoked OAE (TEOAE) – evoked by clicks.
  - Distortion product OAE (DPOAE) – two tones are simultaneously presented to the cochlea to produce distortion products.

323. A. Electrocochleography

Electrocochleography (ECoG)

Recording of evoked neuroelectrical events from the auditory nerve and cochlea in response to auditory clicks via air conduction

324. A. Endolymphatic hydrops

Recruitment: increasing signal intensity produces an out-ofproportion perception of loudness, suggests cochlear hearing loss (eg, endolymphatic hydrops), recruitment causes discomfort within a shorter range of the SRT (normally 95 dB above SRT causes discomfort)

325. C. Lateral lemniscus

Auditory Brainstem Response (ABR)

Auditory Brainstem Response: recording of the activity of the eighth nerve and central nervous system's response to an auditory signal, occurs during the first 10–20 ms after the stimulus

AUDITORY BRAINSTEM RESPONSE (ABR)

Auditory Brainstem Response:

- Recording of the activity of the eighth nerve and central nervous system's response to an auditory signal, occurs during the first 10–20 ms after the stimulus

Technique:

- Active and reference electrodes are placed on the vertex,high forehead, mastoid, or earlobe; clicks, filtered clicks, or tone bursts are introduced to the ear between 5 and 50 times per second; surface electrodes utilize signal averaging to record specific ABR waves

Indications:

- Asymmetric hearing loss, unilateral vestibular weakness,or unilateral tinnitus suggestive of retrocochlear pathology; high risk children or with failed auditory screening (OAE); suspected malingerers; intraoperative monitoring
- Unaffected By Sedation; Affected By Phenytoin, Lidocaine, Diazepam, And Halothane
- Waveform ABR may not be measurable with SNHL of ±60 db

ABR Peaks: Each peak may correlate to an anatomical location

- I–II: Eighth nerve (distal and proximal segments)
- III: Cochlear nuclei
- IV: Olive (superior)
- V: Lateral lemniscus (largest wave)
- VI–VII: Inferior Colliculus

Only waves I, III, and V are observed at birth, I–V is prolonged at birth

326. A. Complete obstruction of ear canal

Average Hearing Loss Seen in Different Lesions of	Conductive Apparatus
1. Complete obstruction of ear canal:	30 dB
2. Perforation of tympanic membrane: (It varies and is directly proportional to the size Of perforation)	10-40 dB
3. Ossicular interruption with intact drum:	54 dB
4. Ossicular interruption with perforation:	38 dB
5. Closure of oval window:	60 dB

327. A. Superior olivary complex

- Acoustic (stapedial) reflex: In response to loud sound contraction of the stapedius muscle stiffens the middle ear ossicles and tilts the stapes in the oval window of the cochlea; this effectively decreases the vibrational energy transmitted to the cochlea. Due to ease of administration and information yielded, the acoustic reflex is considered one of the most powerful differential diagnostic audiological procedures.

The best known reflex mediated through the superior olive is the stapedius reflex.

328. D. Cochlear disease

- Sensorineural hearing loss (SNHL) is a type of hearing loss in which the root cause lies in the vestibulocochlear nerve (cranial nerve VIII), the inner ear, or central processing centers of the brain. Sensorineural hearing loss can be mild, moderate, or severe, including total deafness.
- Bone conduction can be taken as a marker for Sensorineural hearing loss

329. A. Non-organic hearing loss

Bekesy self-Recording Audiometry
Type-1 - Normal ear or conductive hearing loss
Type-11 -Sensory form of hearing loss
Type-111 –Severe tone decay and is typical of neural deafness
Type-1V – More common in neural than in sensory deafness
Type-V -Non-organic hearing loss

330. C. Type III

- Type I ---- myringoplasty
- Type II ---- over incus
- Type III----- over stapes (columella effect)
- Type IV ---- over foot plate (minor cavum)
- Type V ---- fenestration

331. B. Tympanometry

Tympanometry curves
Type A--- Normal
Type B-- Glue Ear
Type C--- Negative middle ear pressure/ E T Dysfunction
Type Ad---- ossicular dislocation
Type As----- otosclerosis

In VEMP, we stimulate the saccule with sound and we record the contractions of Sternocleidomastoid muscle (Vestibulocollic reflex). This test checks the inferior vestibular division of 8th nerve as saccule is supplied by this nerve.

332. B. 24 %

Steps of calculating Degree of hearing handicap

1. Calculate the average of thresholds of hearing for frequencies of 500,1000, and 2000 Hz.
2. Deduct from it 25 db.
3. Multiply it by 1.5.

This is the percentage of hearing impairment for that ear. Similarly calculate the percentage of hearing impairment of the other ear.

Percentage handicap of an individual is

$$= \frac{(\text{better ear \%} \times 5) + \text{worse ear \%}}{6}$$

So

Ear	500 Hz	1000Hz	2000Hz
Right	30 db	30 db	60 db
Left	30 db	45 db	60 db

Impairment Rt ear 40– 25 = 15 ; 15 × 1.5 = 22.5 %

Impairment Lt ear : 45 – 25 = 20 ; 20 × 1.5 = 30 %

Total handicap = $\frac{(22 \times 5) + 30}{6}$

= 142.5 ÷ 6 = 23.75 %

= 24 %(rounded off)

333. A. Severe intensity

Characteristic	Peripheral	Central
Intensity	Severe	Mild
Fatigability	Fatigues, adaptation	Does not fatigue
Associated symptoms	Nausea hearing loss, sweating	Weakness, numbness
Eye Closure	Symptoms worse with eyes closed	Symptoms better with eyes closed
Nystagmus	Horizontal, may be unilateral, rotary	Vertical, bilateral
Ocular fixation	Suppresses nystagmus (may not suppress during acute phase)	No effect or enhances

334. D. 40 ml water

Lab tests:

- Modified kobrak test.
- Fitzgerald –hallpike test.
- Cold air caloric test.

In modified kobrak test,labyrinth is considered dead if no response is seen on 40 ml.

335. C. Cup Ear Deformity

Common Auricular Defects

- Protruding Ear: auriculocephalic angle >30°, caused from loss of formation of the antihelical fold or overgrowth or protrusion of the conchal cartilage
- Cryptotia: pocket ear deformity
- Cup Ear Deformity: constriction of the helix and scapha; Rx: requires unfurling of the helical rim by dividing the helical-scaphoid cartilage to allow for expansion followed by redraping of skin over the excess cartilage
- Colobomata: clefts

336. D. Lasts more than 60 seconds before abating

Benign Paroxysmal Positional Vertigo

1. Benign paroxysmal positional vertigo (BPPV) is a disorder frequently seen in neurotologic practice and stems from loose otoconia in the posterior (most commonly), horizontal,or superior semicircular canals.

The nystagmus of BPPV is pathognomonic:

- Several (2-to 10-) second latency
- Geotropic (beating toward the ground)
- Horizontal-rotary
- Lasts no more than 30 seconds before abating
- Fatigues with repetition of the hallpike maneuver.

337. A. Barotitis media

- Barotitis media (middle ear squeeze) is the most common form of barotrauma in scuba divers. On descent, pressure on middle ear gas increases.
- With eustachian tube dysfunction (due to anatomic abnormality or respiratory infection), the tympanic membrane retracts, resulting in mucosal engorgement, hemorrhage, and often tympanic membrane perforation.
- The resultant cold water in the middle ear commonly produces vertigo, nausea, and vomiting.
- Divers may also complain of acute pain and diminished hearing secondary to conductive hearing loss.

338. B. Osteoma

Osteoma

- True neoplastic benign outgrowth in the external auditory canal.
- Single, unilateral protrusion at the bony cartilage junction

- Asymptomatic unless becomes obstructive.
- Excise if symptomatic

339. C. Keratosis Obliterans

Keratosis Obliterans Keratosis Obliterans

- External auditory canal cholesteatoma caused by blockage of the EAC permitting accumulation of epithelial debris

340. D. Incision, drainage, and pressure bandage

- A subperichondrial hematoma in the pinna of the ear may lead to avascular necrosis of the cartilage with shriveling of the pinna and fibrosis and calcification of the hematoma. The result is the deformity known as "cauliflower ear."
- Appropriate treatment consists of evacuation of the hematoma by incision and tight packing of the skin and perichondrium onto the cartilage with a pressure dressing. Needle aspiration does not effect adequate drainage.
- Ice packs may be helpful early, but are not sufficient to prevent the deformity; antibiotics are not indicated for this lesion.
- Since the hematoma is subperichondrial, excision of the hematoma would remove the perichondrium and lead to cartilage deformities.

341. D. Exostoses.

Exostoses

- Multiple or bilateral smooth sessile protrusions of the medial bony canal, results in narrowing of the canal with progressive growth

342. B. Retracted TM touching incus or stapes

Sade classification of retraction of pars tensa

- Grade 1 – mild retraction
- Grade 2—severe retraction—retracted TM touching incus or stapes
- Grade 3—Atelectatic TM—TM touching promontory but moves on seigelisation
- Grade 4---Adhesive TM--TM touching promontory, does not move on seigelisationos classification of pars flaccida

Toss classification of pars flaccida

- Stage I: Pars flaccida is dimpled and is more retracted than normal. It is not adherent to the malleus.
- Stage II: In this stage the retraction pocket is adherent to the handle of malleus. The full extent of the retraction pocket can be clearly seen.
- Stage III: In this stage part of the retraction pocket may be hidden. There may also be associated erosion of the outer attic wall (scutum).
- Stage IV: In this stage there is definite severe erosion of the outer attic wall. The extent of the retraction pocket cannot be clearly seen as most of it are hidden from the view

343. D. Pseudomonas.

Osteomyelitis of the Skull Base (Necrotizing or Malignant External Otitis)

- Pathophysiology: extension of infection from the EAC into the temporal bone or skull base resulting in progressive osteomyelitis
- Pathogens: Pseudomonas aeruginosa (most common)
- Risks: debilitated and immunocompromised patients (diabetics, HIV) radiation exposure

344. A. Stage 1

Staging

Stage	features
Stage 1	Clinical evidence of malignant otitis externa with infection of soft tissues beyond the external auditory canal, but negative Tc-99 bone scan
Stage 2	Soft tissue Infection beyond external auditory canal with positive Tc-99 bone scan

Stage 3	As above, but with cranial nerve palsy 3a - Single 3b - Multiple
Stage 4	Meningitis, empyema, sinus thrombosis or brain abscess

345. D. Technetium scan is more useful in the prognostic evaluation of this entity

Locally destructive infection of bony EAC which is part of skull base. The infection spreds to skull base therefore this disease is actually skull base osteomyelitiscaused by pseudomonas predisposing factors

- Diabetes
- Elderly
- Immunosuppressed

local destruction can involve skull base, mastoid, petrous apex, etc,

There are granulations is the external auditory canal which leads to blood stained ear discharge. Patient has severe ear ache.

Cranial nerve palsies (7, 9-12) can be there – facial nerve is the most commonly involved nerve

Treatment:

- antibiotics (3rd Generation cephalosporins, high dose ciprofloxacin)
- debridment if no response to medical treatment
- management of underlying cause

346. A Tensor veli palatini

Eustachian Tube (ET)

- Embryology: derived from the ventral first branchial pouch
- Consists of a posterior osseous portion (1/3, remains open to the middle ear) and an anterior membranous-cartilaginous portion (2/3, mobile portion) ends in the nasopharynx (torus tubaris)
- In the adult the ET is 45° from horizontal; in the infant the ET is shorter and is 10° from horizontal (more susceptible to regurgitation with feeding)
- Associated Muscles: tensor veli palatini (V3, predominant dilator, the medial bundle of the tensor veli palatini forms the dilator tubae), levator veli palatini (pharyngeal plexus), salpingopharyngeus (pharyngeal plexus), tensor tympani (V3) muscles
- Functions: ventilation (equalization of pressure between nasopharynx and middle ear), clearance (drainage), and protection (from sound and secretions)

347. D. Outer hair cells

- Noise trauma to the ear may produce sensorineural hearing loss that is more severe in the high frequencies.
- This may be the result of repeated exposure to occupational noise, or it may be the result of a single exposure to extremely loud noise, such as to an explosion.
- There is some evidence that there may be genetic variations in sensitivity to a given noise level.
- In addition, the inner ear may be sensitized to noise by the administration of aminoglycosides or aspirin.
- Following noise trauma, the earliest changes occur in the basal turn, particularly among outer hair cells.
- With more severe or repeated injury, the inner hair cells may be damaged, with subsequent secondary degeneration of cochlear neurons.

348. A. Meningitis

- Meningitis may be associated with acute or subacute/chronic infection. Acute otitis media is the most common cause of meningitis. Extradural granulation tissue or frank pus may be found.
- In adults and children, meningitis in the setting of chronic suppurative otitis media may be secondary to the direct extension of infection through the dura, through a previous stapedectomy site, or through a cholesteatoma-induced labyrinthine fistula.

349. C. Via E.T.

Acute Otitis Media (Acute Suppurative Otitis Media)

Acute Otitis Media (Acute Suppurative Otitis Media): acute infection (<3 weeks) causing inflammation of the middle ear space

Second most common disease in children (upper respiratory infection is the most common)

Pathophysiology: eustachian tube dysfunction results in negative middle ear pressures leading to transudative fluid collection in the middle ear space and subsequent infection

350. B. ASOM

- In acute suppurative otitis media discharge may be seen extruding from a small perforation in the pars tensa portion of the ear drum.
- This is known as the light house sign.

351. C. Presbycusis

Conductive Hearing Loss (CHL): normal bone conduction thresholds with abnormal air conduction thresholds (presence of an ABG), maximal conductive hearing loss is 60 dB (ossicular chain discontinuity with an intact TM)

- High Frequency SNHL: characteristic of presbycusis
- Bilateral Down-sloping High Frequency SNHL: characteristic of presbycusis

352. B. Pseudohypacusis.

Pseudohypacusis: subjective loss of hearing by a patient with the absence of organic pathology

Average PTA of 500, 1000, and 2000 Hz should be within 10 dB of

SRT

Acoustic reflexes should be absent if tests suggests significant hearing loss

STENGER'S Test: the principle is that 2 tones of the same frequency presented to each ear cannot be heard simultaneously if one is louder; subject is given 2 simultaneous tones with matched frequency but the alleged poorer ear receives a tone at a greater intensity; a genuinely hearing impaired subject or normal subject should hear the tone with the better hearing ear; pseudohypacusis is suggested if the subject reports hearing nothing (denying any sounding the poorer hearing ear)

- Lee's Speech Delay Test: patient is played back his or her own speech at a delay that would cause the subject to stutter
- Lombard Test: background noise is gradually introduced below the subject's recorded response threshold as the subject is asked to read aloud; pseudohypacusis is suspected if the volume of the reader's voice increases as the masking noise is presented

353. D. Stenger's test

TESTS FOR MALINGERING

TUNING FORK TESTS FOR MALINGERING

Stenger's test

Teal's test

Chimani Mooss test

PURE TONE AUDIOMETRY TESTS

Variable response to stimuli

Stenger's test:

Auditory reflex threshold

Bekesy audiometry

(LOT TEST) Lengthened off time test: LOT

Air conduction shadow tests

Bone conduction shadow tests

VOICE TESTS FOR MALINGERING

Erhardt's test

Delayed speech feed back test

Two tube test of Teuber

Doerffler Stewart test

Hummel Double conversation test:

354. A. Glomus tumour

Glomus Tumors (Paragangliomas, Chemodectomas)

Glomus Tumor: slow growing, benign tumor although locally destructive (expansive, bone eroding) of the chemoreceptive cells (paraganglion cells, neural crest in origin) distributed along parasympathetic nerves in the base of skull, neck, and chest

- Most common benign tumor of the temporal bone of adults (rare in pediatrics)

- Types
  1. Carotid Body: arise from carotid body, most common type, typically does not involve the temporal bone
  2. Glomus Tympanicum: arise from the promontory along the course of Jacobson's nerve, tympanic branch of CN IX, confined to the middle ear space
  3. Glomus Jugulare: arise from the region of the jugular foramen
  4. Glomus Vagale: arise from paraganglia around the vagus nerve at the base of skull
- SSx: pulsatile tinnitus (most common symptom), hearing loss, cranial nerve palsies, aural discharge, otalgia, dizziness (invasion of the labyrinth), reddish middle ear mass, BROWN'S SIGN (BLANCHING OF THE TM WITH POSITIVE PRESSURE)

355. True statement regarding facial palsy:

a. Common with longitudinal fracture.
b. Common with transverse fracture.
c. Always associated with CSF otorhoea.
d. Complete nerve palsy.

355. B. Common with transverse fracture.

	Longitudinal	Transverse
Frequency.	More common.	
Type of injury.	Parietal blow	Occipital blow
Fracture line	Parallel to the long axis of petrous pyramid, starts at squamous part of temporal bone to end at foramen lacerum.	Run across the petrous pyramid Start at foramen magnum or jugular foramen
Bleeding ear	Common	---
CSF rhinorrhoea	Present	----
Structure injured.	Tegmen,ossilcles,TM	Labyrinth
Hearing loss	Conductive	SN
Vertigo	Less	
Facila paralysis.	Less	

356. A. Immediate decompression

- Immediate onset facial palsy after trauma is due to transaction of the nerve due to injury or impingement on the nerve.
- The only option here is surgical exploration to expose the nerve in its canal to decompress and carry out either a repair (if the cut ends are in approximation) or grafting (if the ends cannot be brought together without tension).
- Delayed onset facial palsy is due to edema of the nerve and would improve with steroids.

357. B Round Window

Cochlear Implants

- Cochlear implants convert sound into an electric signal and stimulate the cochlear nerve directly
- Components: microphone (placed above ear), processor (placed behind the ear or worn in the pocket), receiver-stimulator, and implantable electrode (typically placed intracochlearly in the scala tympani via the round window)

358. A. Pneumococcal meningitis

- Meningitis, although rare, is an im-

portant exception. Although meningitis has been shown to occur in fewer than one of every 1000 patients who receive the implant, it can be life-threatening.

- Meningitis related to the implant can occur anywhere from one day to many years after surgery

359. D. Brain stem implant

Hearing loss	Rehabilitative measure
• Conductive hearing loss • Mild/moderate SNHL • Bilateral severe to profound SNHL with word recognition score < 30% • Bilateral damage to eight nerve by trauma/bilateral vestibular schwannoma	• Corrective surgery/ Hearing aids • Hearing aids • Cochlear implants • Brainstem auditory implants (placed near cochlear nucleus)

360. B Scala tympani

- Cohlear implants
- They are electronic devices which convert sound signals to electrical impulses which directly stimulate the fibres of CN VIII.
- Used in cochlear type of SNHL where hair cells are non functional but nerve fibres remain intact and functional.
- Components of implants:

External component	Internal component
• Microphone • Speech processor • Transmitter • It remains outside the body	• Receiver/ stimulator (implanted under the skin) • Electrode ↓ It is implanted in the scala tympani of the cochlea via a cochleastomy opening in the basal turn of cochlea. It may be placed at other locations like promontory or Round Window but these are inferior locations than cochlea.

361. A. 6months

- The deaf children of hearing parents may not have significant exposure to any language in early childhood. Because of their sensory loss, these children perceive little of their parents' speech.
- It is a goal for some audiologists to test and fit a deaf child with a cochlear implant by six months of age, so that they don't get behind in learning language.
- Deaf children do not acquire speech the same as hearing children because they cannot hear the language spoken around them. In normal language acquisition, auditory comprehension precedes the development of language.
- Without auditory input, a person with prelingual deafness is forced to acquire speech visually through lip-reading. Acquiring spoken language through lip-reading alone is challenging for the deaf child because it does not always accurately represent speech sounds.
- The likelihood of a deaf child successfully learning to speak is based on a variety of factors including: ability to discriminate between speech sounds, a higher than average non-verbal IQ, and a higher socioeconomic status.
- Despite being fitted with hearing aids or provided with oral instruction and speech therapy at a young age, prelingually deaf children are unlikely to ever develop perfect speech and speech-reception skills.
- Some researchers conclude that deaf children taught exclusively through spoken language appear to pass through the same general stages of language acquisition as their hearing peers but without reaching the same ultimate level of proficiency.

362. A. Congenital cholesteatoma

Congenital cholesteatomas are believed to arise from embryonal inclusions or rests of epithelial cells.

Levenson, et. al. in 1989, established a set of criteria for the definition of congenital cholesteatoma in the middle ear. These criteria included, (1) a white mass medial to a normal tympanic

membrane, (2) a normal pars flaccida and pars tensa, (3) no prior history of otorrhea or perforations, and (4) no prior otologic procedures. In addition, (5) prior bouts of otitis media were not grounds for exclusion as was the case in the original definition.

363. B. Acute diffuse external otitis

- Warm temperatures and high humidity are likely to promote infection in the ear canal. Trapping of water within the ear canal, trauma to the skin of the ear canal (from cotton swab abuse or hearing aid use), loss of the natural protection of ear wax, or exposure to contaminated water may also cause otitis externa.
- It is caused most commonly by bacteria called Pseudomonas aeruginosa, a common organism on the skin. This bacterium takes advantage of the chronic wet ear which has a lowered resistance to infection.
- Any scratch or irritation will allow this organism to cause an infection.
- Other causative organisms include Proteus, staphylococcus, streptococcal species and at times various fungi.
- The acute infection is characterized by severe, deep ear pain. The pain is usually either accompanied or preceded by itching. The external ear is tender to palpation and manipulation. The ear canal becomes red and swollen. There is rarely discharge or hearing loss associated with acute otitis externa.

Malignant otitis externa

- Is a severe, sometimes indolent, necrotizing infection that can become destructive and life-threatening as it erodes through deeper structures.
- The causative agent is usually Pseudomonas aeruginosa although other pathogens have been described.
- Initial symptoms include severe pain and swelling of the ear canal and pinna with accompanying purulent drainage.
- A mass of granulation tissue can be seen on otoscopic examination in the majority of patients.
- Fever and leukocytosis are frequently absent.
- If untreated, infection spreads to involve the surrounding structures resulting in osteomyelitis of the temporal bone, progressive cranial neuropathies, meningitis, brain abscesses or dural sinus thromboses

Otomycosis

- The ear is a warm, wet, dark place. Fungus can readily grow here.
- The ear usually itches, and severe pain may occur.
- Te commonest fungi are Aspergillus sp. and Candida sp.
- Most commonly develops n chronically inflamed ear canal that has been treated with a variety of antibiotics .

Aspergillosis :- the lumen is filed with large shed sheet of keratin that have a wet tissue paper appearance.

Candida:- usually causes a greater oedema and maceration of the deep ear canal .The lumen may be filled by cured like material.

Furuncle

- Also called as Acute Localised Otitis Externa .
- Small abscess which usually develops in hair follicals.
- Invariably in lateral canal and usually in lateral meatus.
- Appears as exquisitely tender small pimple
- Pointing with a demarcated pustule.

364. D. Mastoid exploration

Mastoidectomy

Intact Canal Wall Mastoidectomy:

preserves the posterior and superior wall of the EAC.

procedure of choice to avoid mastoid bowl and provide a water safe ear.

indicated for

1. Limited disease
2. A reliable patient for follow-up (to check for recurrent disease)
3. Increased risk of undetected

365.

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recurrence or residual cholesteatoma (may require a "second look" procedure)

4. Other advantages include faster healing rate

Modified Radical Mastoidectomy (Canal Wall Down Technique):

posterior EAC is removed creating a "mastoid cavity or bowl"

Indicated For

- Advanced disease (eroded canal wall, large cholesteatoma)
- Noncompliant patients, only hearing ear; provides good exposure and easier recognition of recurrent disease

Disadvantages

- Required cleaning of mastoid cavity
- Difficulty with hearing aid fitting
- Increased risk of infection with water exposure

Radical Mastoidectomy: totally exteriorizes the middle ear, attic, and mastoid cavity and obliterates eustachian tube; rarely indicated today

365. A. Lateral Sinus Thrombophlebitis

LATERAL SINUS THROMBOPHLEBITIS

- Inflammation with subsequent thrombus formation of the sigmoid and/or transverse sinus
- "Picket fence" spiking fevers
- Griesinger's sign (pain over mastoid from occlusion of the mastoid emmisary vein)
- Tobey-Ayer or Queckenstedt's test(normally external compression of jugular vein results in a rapid increase in CSF pressure of 50–100 mm Hg, compression on the side of lateral sinus thrombosis results in a slow rise or no rise in CSF pressure secondary to obstruction
- Parenteral antibiotics and possible surgical exploration via a mastoidectomy, may require ligation of internal jugular vein recalcitrant disease.

366. A. Ruedi's theory

a. Wittmaack's theory---retarction pocket.

b. Habermann's theory---Epithelial Invasion.

c. Ruedi's theory—Basal cell hyperplasia.

d. Sade's theory ----Metaplasia.

367. A. Profuse discharge

	Safe	Unsafe
Discharge.	Profuse.	Scanty.
Perforation.	Central	Marginal,subtotal
Granulation.	----	+
Polyp.	----	+
Complication.	----	+

368. D. Meniere's disease

- Hearing tests of meniere's often begin with showing a fluctuating low-frequency sensorineural hearing loss (figure 3a).
- Over years, this gradually progresses to a "peaked" pattern with both low and high-tone reduction, and finally a "flat" pattern, typically 50 db loss (110 db would be completely deaf).

369. A. Cochlea

- Monaural diplacusis diplacusis in which a pure tone is heard in the same ear as a split tone of two frequencies.
- Monoaural displacusis is seen in the cochlear lesions

370. C. Lermoyez syndrome

- Lermoyez's syndrome: Tinnitis and loss of hearing prior to an attack of vertigo, after which hearing improves. It is considered a variant of labyrinth idropsy, similar to Ménière's disease.
- While Ménière's disease is chronic and progressive, Lermoyez's syndrome is an acute phenomenon which results in no damage for the ciliated cells of cochlea.
- This is possible because the excess of pressure inside the inner ear is reduced by a break of the sacculum, in the vestibular labyrinth, with no long term consequence for the cochlea.

371. B. Otosclerosis.

Pulsatile tinnitus can be arterial or venous in origin, or it may originate between arteries and veins, i.e. in capillaries or the arteriovenous transition.

1.Tinnitus arising in the arteries

Vascular stenoses

Aneurysms

Anatomical variants and abnormalities of the arteries

2.Tinnitus arising in the arteriovenous transition

3.Tinnitus arising in the veins

Intracranial hypertension

Anatomical variants and abnormalities of the veins and sinuses

Other tinnitus

Rare causes of pulsatile tinnitus include meningocele of the temporal bone (34), cholesterol granulomas , and perilymph fistulas

372. A. Otosclerosis

Gelle's test:

The air pressure in the EAM is altered by a Siegle's speculum leading to increased stiffness of the ossicular chain. In the normal patient or in sensorineural deafness bone conducted sound appears to be decreased in intensity. Whereas in stapes fixation no alteration occurs.

Bing test:

Increased loudness for bone conducted sound less than 2 kHz, occurs in the normal or sensorineural deafness when the EAM is occluded without increasing the pressure (As the masking effect of air conducting sound is removed). There is no change in conductive deafness.

373. D. Otosclerosis

- The Carhart notch, an audiological finding mainly of historical importance, is a dip at 2000 hz in bone conduction without a corresponding dip in air conduction.
- The Carhart notch is often found in persons with conductive hearing loss, including "glue ear"
- It is not useful as a predictor of otosclerosis

374. B. Ptosis

Acoustic Neuroma : (VIIIth N. Schwannoma or Neurilemmoma)

Vestibular schwannomas account for 85% of cerebellopontine angle tumors in adults and most commonly arise from the inferior division of the vestibular nerve.

C/F:

- Progressive SNHL, Tinnitus
- Marked difficulty in understanding speech (out of proportion to pure tone HL)
- Imbalance, True vertigo is rarely seen
- Vth Nerve is the earliest to be involved

375. A. Labyrinthine segment of facial nerve

1. Schirmer's Test - Reduced lacrimation - lesion proximal to geniculate ganglion (first genu)
2. Stapedial Reflex - Lost in lesions above N. to Stapedius (above second genu)
3. Taste test - Impairment of taste means lesion above chorda tympnai origin

376. B. Inferior vestibular division of 8th nerve

- Acoustic neuromas account for 80% of tumors found within the cerebellopontine angle. The remaining 20% are mainly meningiomas.
- More than 90% of acoustic neuromas (eighth nerve schwannomas) arise from the vestibular division of the nerve.
- The superior and inferior vestibular nerves appear to be the nerves of origin with about equal frequency. Recently, a higher predominance has been attributed to inferior vestibular nerve.
- Vestibular schwannomas characteristically present as progressive unilateral hearing loss.
- Hearing loss is present in 95% of patients. Destruction of vestibular fibres is slow.
- Therefore, many patients do not

experience disequilibrium or vertigo. As a vestibular schwannoma grows, it can compress the trigeminal nerve, thereby causing loss of corneal reflex as the first sign.

377. B. Recruitment is present

Recruitment is defined as abnormal perception of loudness. It is a feature of cochlear deafness (eg. Meniere's disease) . Tone decay test – tone decays faster in retrocochlear hearing loss.

Speech audiometry- the discrimination score is very poor in retrocochlear and poor in cochlear hearing loss. And the roll over phenomenon in speech audiometry is seen in retrocochlear lesions. It means that on increasing the intensity of sound, the discrimination score even falls further

BERA shows increased interaural latency difference of wave v more >0.2msec i.e the latency of wave V is increased on the affected side in retrocochlear lesions

SISI score – short increment sensitivity index score of a cochlear disease patient is even better than normal

378. B. Sensorineural hearing loss on audiometry

- Superior semicircular canal dehiscence is either traumatic or congenital. Patient complains of vertigo especially on hearing loud sounds (tullio's phenomenon).
- Patient shows conductive hearing loss on audiometry due to leakage of sound energy from third window which has been created in SCC (apart from oval and round window).
- HRCT temporal bone is the diagnostic investigation.
- Vestibular evoked myogenic potentials (VEMP) is also helpful in its diagnosis.

379. B. Caroverine

A commonly used criterion to qualify for this diagnosis is a sensorineural hearing loss of greater than 30 dB over 3 contiguous pure-tone frequencies occurring within 3 days' period. Usually it presents as unilateral loss of hearing; bilateral involvement is rare

Causes :

1. Infections : Mumps, herpes zoster, meningitis, encephalitis, syphilis, otitis media
2. Trauma : Head injury, ear operations, noise trauma, barotrauma, spontaneous rupture of cochlear membranes
3. Vascular haemorrhage (leukemia), embolism or thrombosis of labyrinthine or cochlear artery or their vasospasm. They may be associated with diabetes, hypertension, polycythemia, macroglobinaemia or sickle cell trait

Treatment :

1. Bed rest
2. Steroid therapy
3. Inhalation of carbogen (5% CO_2 + 95% O_2) increases cochlear blood flow
4. Vasodilator drugs
5. Hyperbaric oxygen therapy

380. A. Intralesional Bleomycin is standard therapy

Glomus jugulare is a variety of paraganglinoma which originates from glomus cells lying around the jugular bulb. It is more common in females It's a benign non capsulated locally invasive tumour. It is a highly vascular tumour of skull base which leads to pulsatie tinnitus. It erodes the floor of middle ear and start appearing in the middle ear in the hypotympanum as red vascular mass (Rising sun sign). When it enters EAC, there is bleeding from ear canal. Brown sign is on otoscopy when tumour blanches on seigelisation.

Remember rule of 10 % for paraganglinomas—10% are multicentric, 10 % are secretory, 10 % are familial

It spreads on skull base which leads to erosion of septum between carotid canal and jugular foramen (Phelp sign). It can cause 7, 9 10, 11, 12 cranial nerve palsy.

Biopsy is contraindicated.

Since it is a variety of paraganglionoma (other eg. Pheochromocytoma)—therefore urinary VMA levels should be done.

Preoperative embolisation helps to reduce blood loss during surgery.

381. B. Facial Recess

Subiculum seperates oval and round window
Ponticulus runs from promontory to pyramid
Donaldson's line is landmark for endolymphatic sac
Trautmann's triangle is landmark for posterior cranial fossa
Mcevan's triangle (suprameatal triangle) is landmark for mastoid antrum
Korner septum is a variation and a remnant of petro squamous suture. If present, it leads to difficulty in finding the mastoid antrum during mastoid surgery
Pyrmaid lies on posterior wall of middle ear
Promontory lies on medial wall of middle ear
Round window membrane is secondary tympanic membrane. It lies on medial wall of middle ear
Canal for tendon of tensor tympani lies on anterior wall of ME

382. C. Facial nerve decompression

- Bell's palsy is idiopathic sudden onset lower motor neuron facial palsy. In lower motor neuron facial palsy, forehead muscles are also involved. (Supranuclear spares the forehead).
- Herpes simplex is being postulated as an aetiology for Bell's palsy. Steroids are the main stay of management.
- A patient who reports within first three days should be given acyclovir as well. Care of the eye is a very important part of management to prevent exposure keratopathy.
- Chances of recovery in Bell's palsy are 85% and above.
- If there is no recovery after 3 weeks of steroid therapy, electrophysiological nerve testing should be done (Electroneuronography). If there is significant facial nerve degeneration, patient should be taken for surgery (facial nerve decompression) should be done.

383. B. AABR

Summary of Newborn Hearing Screening Protocols

Protocol	Population	Primary Advantages	Limitations	Equipment	Costs
A:ABRonly	NICU or WIN	Lower fail rate than OAE only ref ? Will aid in detecting neural hearing loss	Misses mild hearing loss[3] (unless low stimulus level is used)	ABR	Disposable costs higher than OAE only, initial test time greater than OAE only
B: OAE only	WIN	Lowest disposable costs	Misses neural hearing loss (low prevalence in WIN)'; high fail rate of all protocols	OAE	Disposable and test time lowest; follow up costs higher than ABR due to higher refer rate
C: Two Tier: OAE with ABR rescreen only if OAE is failed	WIN	Lower fail rate than OAE only[7]	Misses mostly mild hearing loss[5,6]	ABR+ OAE	Disposable costs vary depending on OAE fail rate
D: ABR and OAE	NCU or WIN	Will aid in detecting neural hearing loss[2]	Time and cost intensive compared to other protocols	ABR+ OAE	Disposable cost and test time is higher than one technology test or two-tier tests[4]

[1]Berg, Prieve, Serpanos, & Wheaton, 2011;[2] Kirkim, Serbetcioglu, Erdag, & Ceryan, 2008; [3]Norton et al., 2000; [4]Hoff et al., 2000;[5] Johnson et al .,2005;[6] Gravel et al., 2005;[7] Vohr et al., 2001

384. C. OAE normal BERA abnormal

Auditory neuropathy (AN) is a variety of hearing loss in which the outer hair cells within the cochlea are present and functional, but sound information is not faithfully transmitted to the auditory nerve and brain properly. Also known as Auditory Neuropathy/Auditory Dys-synchrony (AN/AD) or Auditory Neuropathy Spectrum Disorder (ANSD).

Auditory neuropathy is diagnosed when a person has present Otoacoustic Emissions in combination with absent or abnormal Auditory Brainstem Response (BERA

385. A. Noise induced hearing loss

The audiogram in NIHL shows a typical notch at 4K Hz, both for air and bone conduction. It is usually symmetrical on both sides.

NIHL causes damage to hair cells, starting in the basal turn of cochlea.

Outer hair cells affected before the inner hair cells.

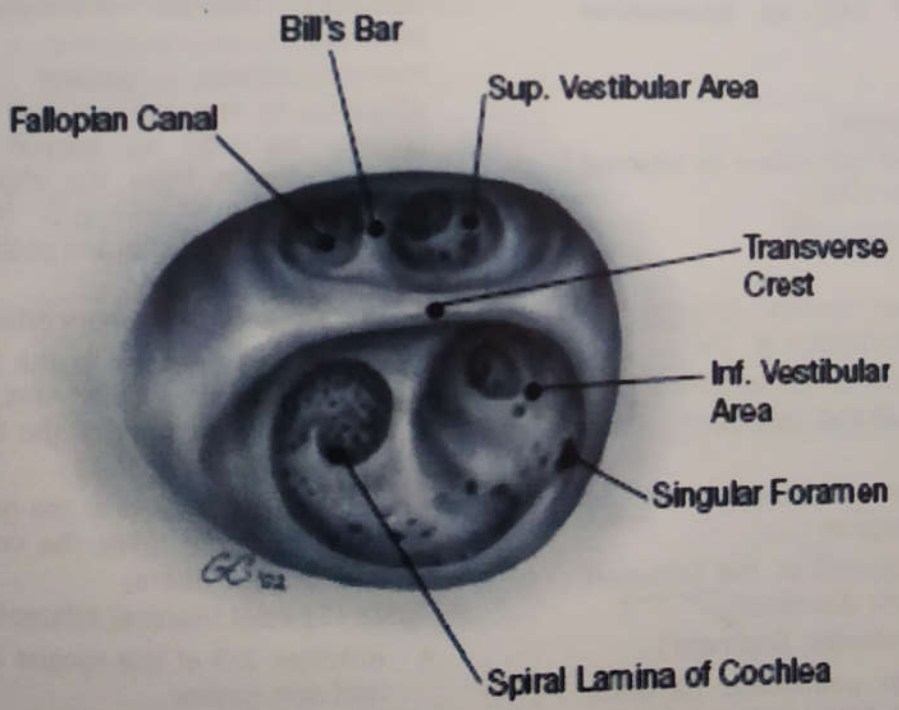
386. A. Presence of voluntary movement

The single most important prognostic factor for eventual recovery of facial nerve function is presence of voluntary movement

387. D. Results of spontaneous recovery are excellent.

- Unlike Bell's palsy where complete recovery is a rule, the prognosis for recovery of facial nerve function in Ramsay Hunt syndrome is only less than 60%.
- Caused by Herpes Zoster virus, there is involvement of VII & VIII cranial nerves along with facial vesicles.

388. D. Superior vestibular and facial nerves



- The lateral wall of the IAC is the lamina cribrosa, and the superior fundus is divide vertically by Bill's bar, a triangular strut of bone seen only on axial images.
- Facial nerve transverses in the anterior superior quadrant of the IAC separated by the falciform crest inferiorly and Bill's bar posteriorly.

Other quadrants

- Superior vestibular nerve [superior posterior]
- Inferior vestibular nerve [inferior posterior]
- The cochlear nerve [inferior anterior]

389. C. Melkersson Rosenthal syndrome

Melkersson's Syndrome : Consists of Triad of:

- Recurrent facial paralysis
- Swelling of lips
- Fissured tongue
- Bell's palsy is idiopathic sudden onset lower motor neuron facial palsy.
- In lower motor neuron facial palsy, forehead muscles are also involved.
- (Supranuclear spares the forehead). Herpes simplex is being postulated as an aetiology for Bell's palsy.Steroids are the main stay of management.
- A patient who reports within first three days should be given acyclovir as well. Care of the eye is a very important part of management to prevent exposure keratopathy.
- Chances of recovery in Bell's palsy are 85% and above.

390. C. Fundus of IAC to geniculate ganglion

FACIAL NERVE

Intracranial Segment

- Segment from brainstem to internal auditory canal (IAC)

Intratemporal Segments

1. Meatal
   - Segment from meatal foramen of the IAC to the fundus of IAC
   - Meatal segment is ensheathed within an extension of the meninges
2. Labyrinthine
   - Segment from fundus of IAC to geniculate ganglion
   - Narrowest segment of the fallopian canal (0.68 mm diameter)
3. Tympanic (Horizontal Segment)
   - Segment from geniculate ganglion to the second genu (inferior to the horizontal canal)
   - Most common site of dehiscence (40–50%)
4. Mastoid (Vertical Segment)
   - Segment from the second genu to the stylomastoid foramen

391. C. Parasympathetic general visceral efferents to the salivary and lacrimal glands, as well as special visceral afferent fibers from the chorda and general sensory efferents from the externalauditory canal and postauricular area

Facial Nerve Components

Branchial Motor (Special Visceral Efferent)

- Premotor cortex—motor cortex–corticobulbar tract --- bilateral facial nuclei (pons) ----muscles of facial expression
- Fibers that innervate the forehead receive bilateral innervation from the upper motor neurons and fibers that innervate the lower face receive contralateral fibers only from the upper motor neurons
- Also supplies stapedius (stapedial reflex), stylohyoid, posterior digastric, and buccinator muscles

Parasympathetic (General Visceral Efferent) Nervus intermedius (of Wrisberg)

Parasympathetic general visceral efferents to the salivary and lacrimal glands, as well as special visceral afferent fibers from the chorda and general sensory efferents from the externalauditory canal and postauricular area

Sensory (General Sensory Afferent)

- Supplies sensation to the auricular concha, postauricular skin, wall of the EAC, and part of the tympanic membrane
- cell bodies housed in the geniculate ganglion (also holds the cell bodies of the taste fibers)

Taste (Special Visceral Afferent)

- Anterior 2/3 of the tongue and hard and soft palate

392. A. Superior vestibular nerve.

Acoustic Neuromas (Vestibular Schwannomas) and Other Cerebellopontine Angle Tumors

Acoustic Neuromas:

- Misnomer : typically does not arise from the cochlear nerve and is not a neuroma) most common CPA tumor(≈85% of CPA tumors)

- Arises from the schwann cells typically of the inferior vestibular portion of CN VIII (Vestibular Schwannoma)
- Indolent growth rate
- Very rare malignant potential

Cerebellopontine Angle: space in the posterior fossa bordered anterolaterally by the petrous bone and clivus, posterolaterally by the cerebellum, inferiorly by the cerebellar tonsil, and superiorly by the cerebellar peduncles and pons

Acoustic Neuroma Histologic Types

1. Antoni Type A: histologically parallel nuclei, uniform spindle cells, compact cells

2. Antoni Type B: histologically less uniform, may have fatty or hyaline degeneration, less cellular

Symptoms:

- Progressive, asymmetric, high-tone hearing loss (most common presenting symptom); Tinnitus;
- Vertigo or imbalance;
- Advanced tumors may present with facial nerve (Hitselberger's sign, reduced
- sensation of the EAC and conchal bowl)
- Trigeminal nerve involvement
- Lower cranial nerve involvement,

393. D. CO2 laser can pass through the flexible endoscopes

- CO2 laser can not pass through flexible endoscopes.
- NdYAG laser can pass through flexible scopes. Carbon dioxide laser is the best laser used for laryngeal procedures.
- This is the invisible laser and an aiming beam is used to target this laser on to the tissues. (10,600nm wavelength)

394. D. Subcarinal lymph nodes

Structures seen in bronchoscopy

- Uvula
- Epiglottis
- Subsegmental bronchi
- Vocal cords
- Larynx
- Trachea
- Carina
- Segmental bronchi

Image Based and Recent Updates – Questions

395. Spot Diagnosis:

a. Quinke's disease
b. Quinsy
c. Palatal hematoma
d. Ca Tongue

396. As per 'Fisch staging system of Juvenile Angiofibromas' stage 3 includes:

a. Tumor invading pterygopalatine fossa
b. Tumor invading extradural (parasellar) involment
c. Tumor invading cavernous sinus
d. Tumor invading optic chiasm

397. Which of the following structure is not visible on 'Indirect Laryngoscopy':

a. Post cricoid space
b. Vestibule
c. Ventricle
d. Apex of pyriform fossa

398. An old man who is endentulous squamous cell CA in bucal mucosa that has developed infiltrated to the alveolus. Following is not indicated in treatment:

a. Radiotherapy
b. Segment mandibulectomy
c. Marginal mandibulectomy involving removal of outer table only
d. Marginal mandibulectomy involving removal of upper half of mandible

399. Metastasis of carcinoma buccal mucosa goes to:

a. Regional lymph node
b. Liver
c. Heart
d. Brain

400. Ludwig's angina is characterized by all the following except:

a. Cellulitis of the floor of the mouth
b. Caused by anaerobic organisms
c. Aphthous ulcers in the pharynx
d. Infection spreads to retropharyngeal space

401. After laparoscopic appendectomy, patient had fall from bed on her nose after which she had swelling in nose and slight difficulty in breathing. Next step in management:

a. IV antibiotics for 7-10 days
b. Observation in hospital
c. Surgical drainage
d. Discharge after 2 days and follow up of the patient after 8 weeks

402. Oral diaphragm is formed by:

a. Mylohyoid
b. Genioglossus
c. Hyoglossus
d. Buccinator

403. A 70 years old male presented with conductive deafness in left ear. His left tympanic membrane appears dull. On examination he has 3 cms enlarged cervical lymph node. On tympanometry, type B tympanogram is seen. Most likely diagnosis is:

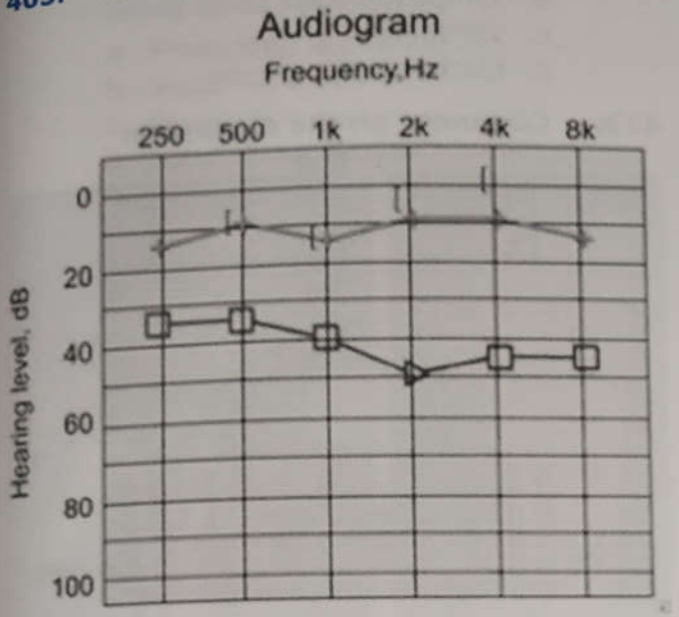
a. Nasopharyngeal cancer
b. Tuberculosis
c. Cerebellopontine angle tumors
d. Cholesteatomas

404 Study the given image and comment on 'Hole' Diameter:

a. 89 mm
b. 69 mm
c. 19 mm
d. 29 mm

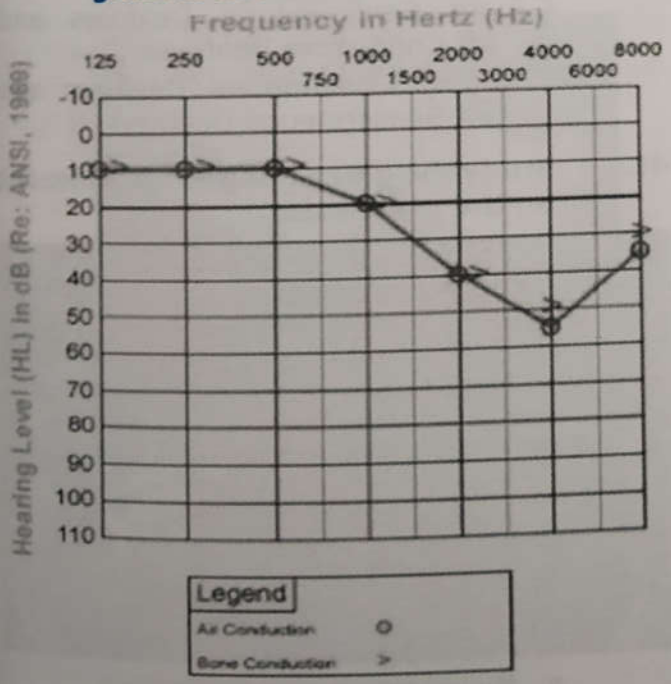
395. a	396. b	397. b	398. c	399. a	400. c	401. c	402. a	403. a	404. c

405. Interpret the following audiogram



a. Normal Hearing
b. Conductive Hearing loss
c. Sensorineural Hearing loss
d. Mixed hearing loss

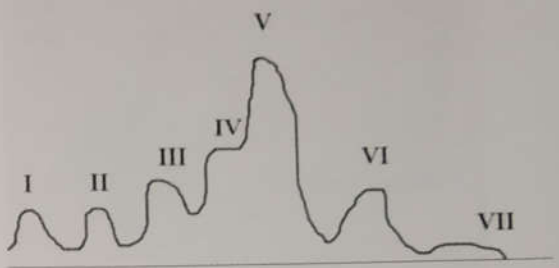
406. A 50 year old male patient presenting with hearing loss complaint was subjected to audiometry. His audiogram is shown below



What is the most possible diagnosis?

a. Otosclerosis
b. Presbyacusis
c. Noise induced hearing loss
d. Mild conductive hearing loss

407. Identify the audiological investigation whose recordings are shown in the given picture



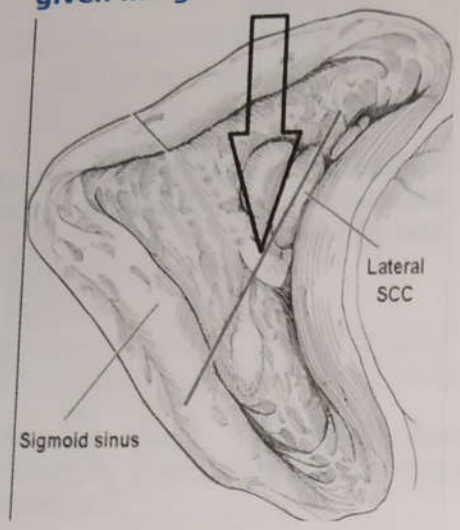
a. Cortical evoked response audiometry
b. Brainstem evoked response audiometry
c. Transient evoked otoacoustic emissions
d. Otoacoustic emissions

408 Identify the abnormality:

a. Bat ear
b. Mozaic ear
c. Stahl's bar
d. Wildermth ear

405. b	406. c	407. b	408. c

409. Identify the landmark shown in given image:

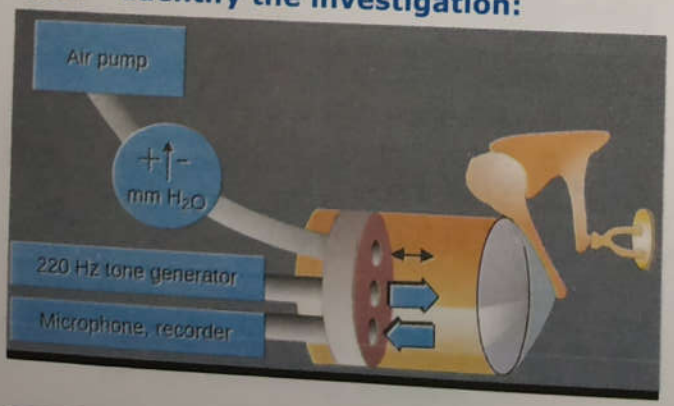


a. Lateral semicircular canal
b. Superior semicircular canal
c. Facial recess
d. Donaldson line.

410. Identify the incision shown the given image?

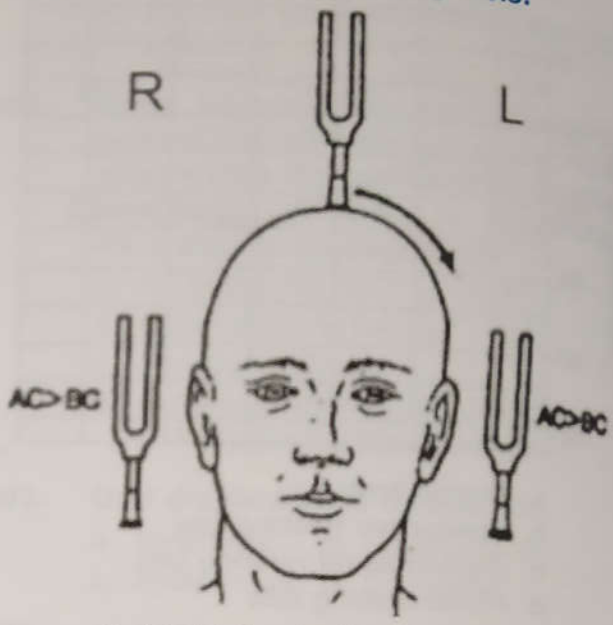
a. Lempert I incision
b. Rosen's incision
c. Lempert II incision
d. Wilde's incision

411. Identify the investigation:



a. Politzer test
b. Tympanometry
c. VEMP
d. Electrocochleography

412. Comment on the diagnosis:



a. Right Conductive Deafness and Left Sensorineural Deafness
b. Right Conductive Deafness and Left Conductive Deafness
C. Right Sensorineural Deafness and Left Conductive Deafness
d. Right Sensorineural Deafness and Left Sensorineural Deafness

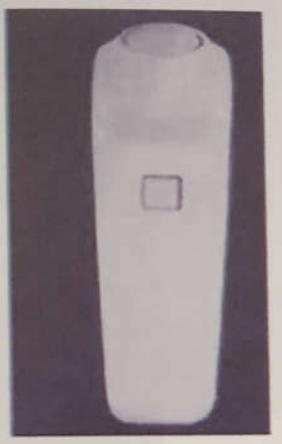
413. Study the given image and comment on the diagnosis:

a. Michel aplasia
b. Mondini dysplasia
c. Bing's dysplasia
d. Scheibe's dysplasia

409. d	410. d	411. b	412. d	413. a

414. Study the given instrument,it is being used for:

a. Preventing Aspiration
b. Voice
c. Respiration
d. None of the above



415. A 2 year old child presents to emergency with fever and respiratory distress. He has drooling of saliva and her mother told he has been refusing feeds since yesterday.

Xray soft tissue neck lateral view is shown in picture.

What is the possible diagnosis?

a. Prevertebral abscess
b. Acute Retropharyngeal abscess
c. Parapharyngeal abscess
d. Peritonsillar abscess

416 Study the given image and comment which of the following nerve will be least commonly involved?

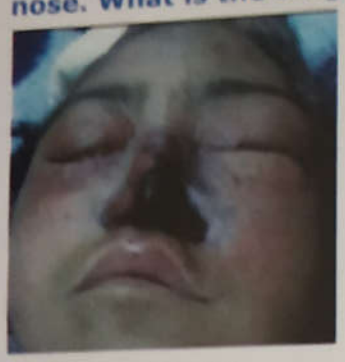
a. 8
b. 9
c. 10
d. 11

417. 16 years old promila presents with pain over the cheek . Patient also complains of purulent nasal discharge. Examination Reveals oedema of lower eyelids and purulent discharge in middle meatus. Involvement of which of the following para-nasal sinus is suspected.

a. Maxillary Sinus
b. Ethmoid Sinus
c. Frontal sinus
d. Sphenoid sinus

414. b	415. b	416. a	417. b

418. A 37 year old patient with Diabetic Ketoacidosis is admitted in ICU. On ENT examination, he is found to be having blackish mass in the nose and necrosis of skin of external nose. What is the Diagnosis?

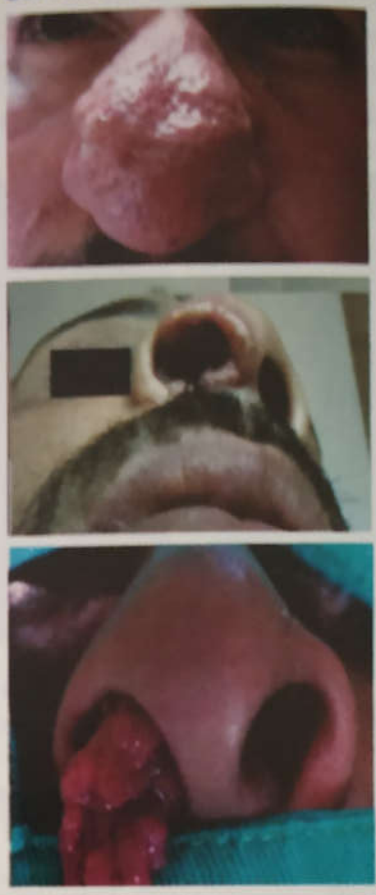


a. Rhinoscleroma
b. Mucormycosis
c. Lupus Vulgaris
d. Cavernous sinus thrombosis

419. Identify the surgical procedure:

a. Submucous Resection
b. Augmentation rhinoplasty
c. Reduction rhinoplasty
d. Le Fort I fracture reduction

420 Study the given image and comment on the best possible combination:



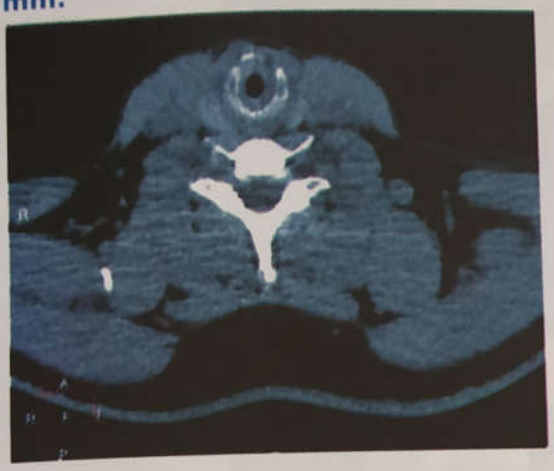
a. A-Rhinophyma – B-Rhinoscleroma C-Rhinosporodiosis
b. B-Rhinophyma – A-Rhinoscleroma C-Rhinosporodiosis
c. C-Rhinophyma – B-Rhinoscleroma A-Rhinosporodiosis
d. A-Rhinophyma – C-Rhinoscleroma B-Rhinosporodiosis

421 Study the given image and comment on the diagnosis?

a. Eagle's syndrome
b. Apert's syndrome
c. Sickler's syndrome
d. Usher's syndrome

418. b	419. c	420. a	421. a

422. A 3 month old child has persistent dyspnoea and stridor since birth. The cry of the baby is normal. On CT scan of neck, the subglottic diameter has been found to be 2.5 mm.



What is the diagnosis?

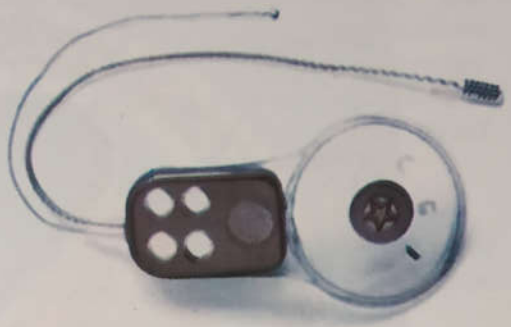
a. Congenital Laryngeal web
b. Laryngeal paralysis
c. Congenital subglottic hemangioma
d. Congenital subglottic stenosis

423. A 33 year old female patient has suddenly developed Aphonia. Her Laryngeal endoscopy picture shows immobile cords as shown in the picture.

What is the diagnosis?

a. Bilateral adductor palsy
b. Bilateral abductor palsy
c. Phonaesthenia
d. Functional Aphonia

424. Which of the following is not an indication of auditory brainstem implant?



a. Neurofibromatosis type 2
b. Congenital absence of 8th nerve
c. Mondini's dysplasia of cochlea
d. Michel's aplasia of cochlea

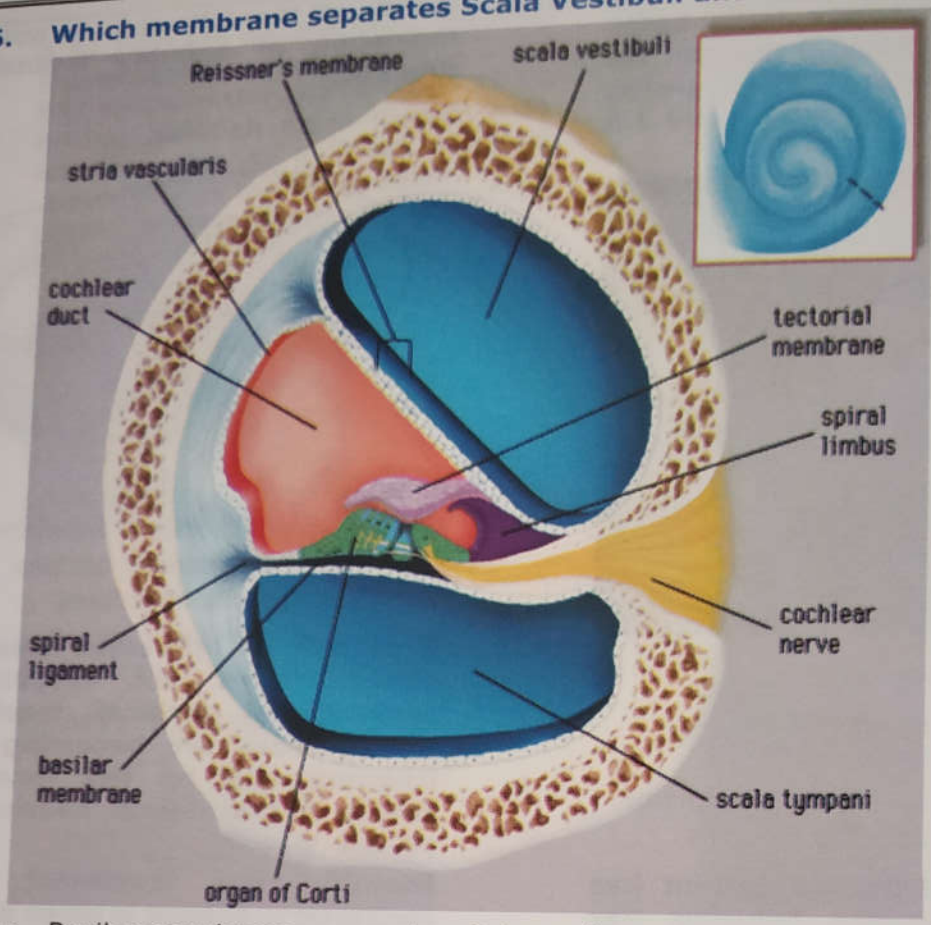
425. A patient of left sided Meniere's disease does not respond to conventional medical treatment. His episodes are becoming more frequent and he has developed severe sensorineural hearing loss on left side.

Identify the treatment being rendered to patient in given picture?

a. Cody Tack procedure
b. Partical repositioning manoeuvre
c. Microwick assisted transtympanic Gentamicin Injection
d. Middle ear Ventilation tube

422. d	423. a	424. c	425. c

426. Which membrane separates Scala Vestibuli and Scala Media?

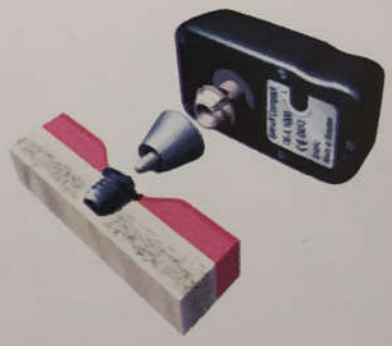


a. Basilar membrane
b. Reissner's membrane
c. Tectorial membrane
d. Sharpnell's membrane

427. Identify the prosthesis given in the picture used in treatment of serous otitis media

a. Ossicular Prosthesis
b. Partical repositioning manoeuvre
c. Microwick assisted transtympanic Gentamicin Injection
d. Middle ear Ventilation tube

428. All of the following are true about bone anchored hearing aid except



a. It has surgically implantable titanium fixture
b. it transmits sound directly to cochlea through the bone conduction using the principle of osseointegration
c. It is indicated in patients with External Auditory canal atresia
d. It is not indicated in patients with chronic discharging ear with hearing loss

426. b	427. d	428. d

Image Based and Recent Updates – Explanations

395. A. Quinke's disease

Odema of the uvula (Quinke's disease)

Definitions: Quinke's disease is acute oedema of the uvula

Peritonsilar Abscess (Quinsy):

Commonest site: Upper pole of tonsils, usually unilateral.

396. B. Tumor invading extradural (parasellar) involment

JUVENILE ANGIOFIBROMA Broadening of the nasal bridge, unilateral cheek prominence and displacement of the Globe of the eye commonly known as Frog face Deformity.

Fisch staging system of juvenile angiofibromas.

1 Tumour limited to the nasopharyngeal cavity; bone destruction negligible or limited to the sphenopalatine foramen.

2 Tumour invading the pterygopalatine fossa or the maxillary, ethmoid or sphenoid sinus with bone destruction.

3 Tumour invading the infratemporal fossa or orbital region:

(a) without intracranial involvement

(b) with intracranial extradural (parasellar) involvement.

4 Intracranial intradural tumour:

(a) without infiltration of the cavernous sinus, pituitary fossa or optic chiasm

(b) with infiltration of the cavernous sinus, pituitary fossa or optic chiasm.

397. B. Vestibule

Indirect laryngoscopy

Structure not seen in this procedure:

- Post-cricoid region
- Apex of pyriform fossa
- Ventricles
- Undersurface of vocal cords and adjoining subglottic region
- Laryngel surface of epiglottis.

398. C. Marginal mandibulectomy involving removal of outer table only

- "In the edentulous patient, the alveolar process is often reabsorbed & tumours arising from the alveolar crest often invade into the cortical bone (of mandible) by direct extension".
- Mandibulectomy should be done.
- "Treatment of lesion of the alveolar mucosa frequently require reaction of the underlying bone".

399. A. Regional lymph node

Patterns of spread of buccal mucosal carcinoma

- Early lesion is discrete and exophytic.
- As it enlarges, it penetrates the underlying muscle and eventually extends to skin.
- Peripheral growth occurs into gingivobuccal gutters and into gingiva and underlying bone.
- Lymphatic spread is first to Submandibular and subdigastric nodes.
- Distant metastasis is rare.
- Tumours of buccal mucosa
- "Tumors in this area have a propensity to spread locally and to metastasize to regional lymphatic's".

400. C. Aphthous ulcers in the pharynx

Ludwig's angina

- Cellulitis of the floor of the mouth
- Caused by anaerobic organisms
- Infection spreads to retropharyngeal space

401. C. Surgical drainage

- The patient in the question had fall from bed following which there is a swelling in nose and slight difficulty in breathing.
- This patient has probably had septal haematoma which should be drained immediately under LA.

402. A. Mylohyoid

- Mylohyoid is a flat triangular suprahyoid muscle:
- The two mylohyoids form the floor of mouth cavity. i.e. form the oral diaphragm.
- As far as other options are concerned – Genioglossus and myoglossus are muscles of tongue whereas Buccinator is a facial muscle.

403. A. Nasopharyngeal cancer.

NASOPHARYNGEAL CANCER

SSx: neck mass (most common initial symptom, 70%), serous otitis media from eustachian tube obstruction (second most common presentation, 50%), nasal obstruction, cranial nerve palsies (abducens nerve most common cranial nerve palsy), recurrent epistaxis, trismus, headache

Epstein-Barr Virus Association

- Early Intracellular Antigen (EA): early intracellular antigen
- Viral Capsule Antigen (VCA): late antigen, most specific immunological finding in nasopharyngeal cancer

404. C.19 mm

HEAD MIRROR

- CONCAVE MIRROR
- FOCAL LENGTH 25 CMS
- DIAMETER 89 MM
- HOLE D 19 MM

405. B. Conductive Hearing loss

Pure tone audiometry is used to measure the auditory threshold of an individual. The instrument used in the measurement of auditory threshold is known as the audiometer.

If both AC and BC lines are in normal range,-- normal hearing
If BC is normal, AC is poor --- conductive hearing loss (AB bap is there)
If both AC and BC are poor--- sensorineural hearing loss

406. C. Noise induced hearing loss

The audiogram in NIHL shows a typical notch at 4K Hz, both for air and bone conduction. It is usually symmetrical on both sides.

NIHL causes damage to hair cells, starting in the basal turn of cochlea. Outer hair cells affected before the inner hair cells.

407. B. Brainstem evoked response audiometry

- The auditory brainstem response (ABR) is an auditory evoked potential extracted from ongoing electrical activity in the brain and recorded via electrodes placed on the scalp. The measured recording is a series of six to seven vertex positive waves of which I through V are evaluated. These waves, labeled with Roman numerals in Jewett and Williston convention, occur in the first 10 milliseconds after onset of an auditory stimulus. The ABR is considered an exogenous response because it is dependent upon external factors.

408. C. Stahl's bar

Abnormal folds (STAHL'S BAR)

1. Abnormal folding of the ear is common.
2. A Stahl's bar or third crus is a frequent finding.
3. In a small number of cases, the upper pole of the ear flops over and here the term 'lop ear' is used.

409. D. Donaldson line.

- One of the key anatomical landmarks used in endolymphatic sac surgery is Donaldson line.
- This is an imaginary line drawn posteriorly from the course of the horizontal semicircular canal.
- The line should course perpendicular to that of the posterior semicircular canal.
- The endolymphatic sac is located inferior to this line.

410. D. Wilde's incision

- Wilde's incision – This post-aural in

cision is used for a variant mastoiditis drainage, and was named after Sir William Wilde, an ENT surgeon in Dubli

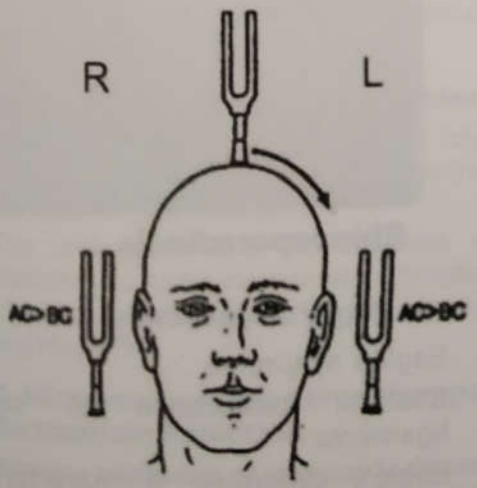
- Tympanomeatal flap is raised to expose the middle ear in endomeatal approach
- Rosen's incision is used in the endomeatal approach for stapedectomy
- It is also used for exploratory tympanotomy.

411. B. Tympanometry

Tympanometry curves
Type A--- Normal
Type B-- Glue Ear
Type C--- Negative middle ear pressure/ E T DYSFUNCTION
Type Ad---- ossicular dislocation
Type As----- otosclerosis

In VEMP, we stimulate the saccule with sound and we record the contractions of Sternocleidomastoid muscle (Vestibulocollic reflex). This test checks the inferior vestibular division of 8th nerve as saccule is supplied by this nerve.

412. Comment on the diagnosis:



Right Conductive Deafness and Left Sensorineural Deafness.
Right Conductive Deafness and Left Conductive Deafness.
Right Sensorineural Deafness and Left Conductive Deafness.
Right Sensorineural Deafness and Left Sensorineural Deafness.

412. D. Right Sensorineural Deafness and Left Sensorineural Deafness

Rinne Test:
Air conduction (AC) of the ear is compared with its bone conduction (BC)
Positive Rinne Test:
AC > BC
Seen in normal persons or those having sensory-neural deafness
Negative Rinne Test:
BC > AC
Seen in conductive deafness
Important point:
A negative Rinne indicates a minimum air-bone gap of 15-20 db.
False negative Rinne test is seen in severe unilateral sensory-neural hearing loss

413. A. Michel aplasia

Michel aplasia, also known as complete labyrinthine aplasia (CLA), is a congenital abnormality of the inner ear. It is characterized by the bilateral absence of differentiated inner ear structures and results in complete deafness (anacusis).

414. B. Voice

Electro-Larynx:
It is transistorized, battery operated portable device.
Its vibrating disc is held against the soft tissues of the neck and a low pitched sound is produced in the Hypopharynx which is further modulated into speech by the tongue, lip, teeth and palate.

415. B. Acute Retropharyngeal abscess

Retropharyngeal Space - Between the buccopharyngeal fascia covering the pharyngeal constrictor & the prevertebral fascia

- Extends from base of skull to bifurcation of trachea
- Divided by a fibrous raphe into 2 (spaces of Gilette)
- Abscess causes U/L bulge on post pharyngeal wall

Acute retropharyngeal abscess -

Commonly seen in children < 3yrs

- Results of suppuration of retropharyngeal LN
- In adults - from penetrating injury of post. pharyngeal wall

C/F :

- Dysphagia & difficulty in breathing (prominent symp)
- Stridor & croupy cough
- Torticollis
- Bulge in post. Pharyngeal wall (usually seen on one side of midline)

Xray STN lat. view - widening of prevertebral shadow

T/t - I & D without GA, antibiotics

416. A. 8

The clinical manifestations of a parapharyngeal abscess are determined by the structures involved around the abscess cavity. An abscess in the posterior component of the space may result in medial displacement of the lateral pharyngeal wall. Extension can result in serious local nerve and life-threatening vascular complications (the internal carotid artery, internal jugular vein, cranial nerves IX, X, XI, and XII, and the sympathetic chain pass posteriorly through the parapharyngeal space

417. B. Ethmoid Sinus

This is a case of maxillary sinusitis with pre septal cellulitis. However, ethmoid sinusitis is most likely to cause orbital infection.

418. B. Mucormycosis (rhinocerebral phycomycosis):

1. Is an aggressive opportunistic fungal infection
2. Organism: Order: Mucor/Rhizopus oryzae
3. Predisposing factors: immuno-suppressed patients, uncontrolled young diabetics

419. C. Reduction rhinoplasty

A reduction rhinoplasty is one of two resizing techniques that can be used during nasal surgery; the other technique is called augmentation rhinoplasty, which involves enlarging a nose that is too small.

Reduction rhinoplasty does exactly what it says: it reduces the size of the nose.

420. A. A-Rhinophyma B-Rhinoscleroma C-Rhinosporodiosis

Rhinophyma

Rhinoscleroma

Rhinosporodiosis

421. A. Eagle's syndrome

Eagle's syndrome

Bilateral ossification of stylohyoid ligaments

Eagle's syndrome is characterised by pain in tonsillar fossa and upper neck.

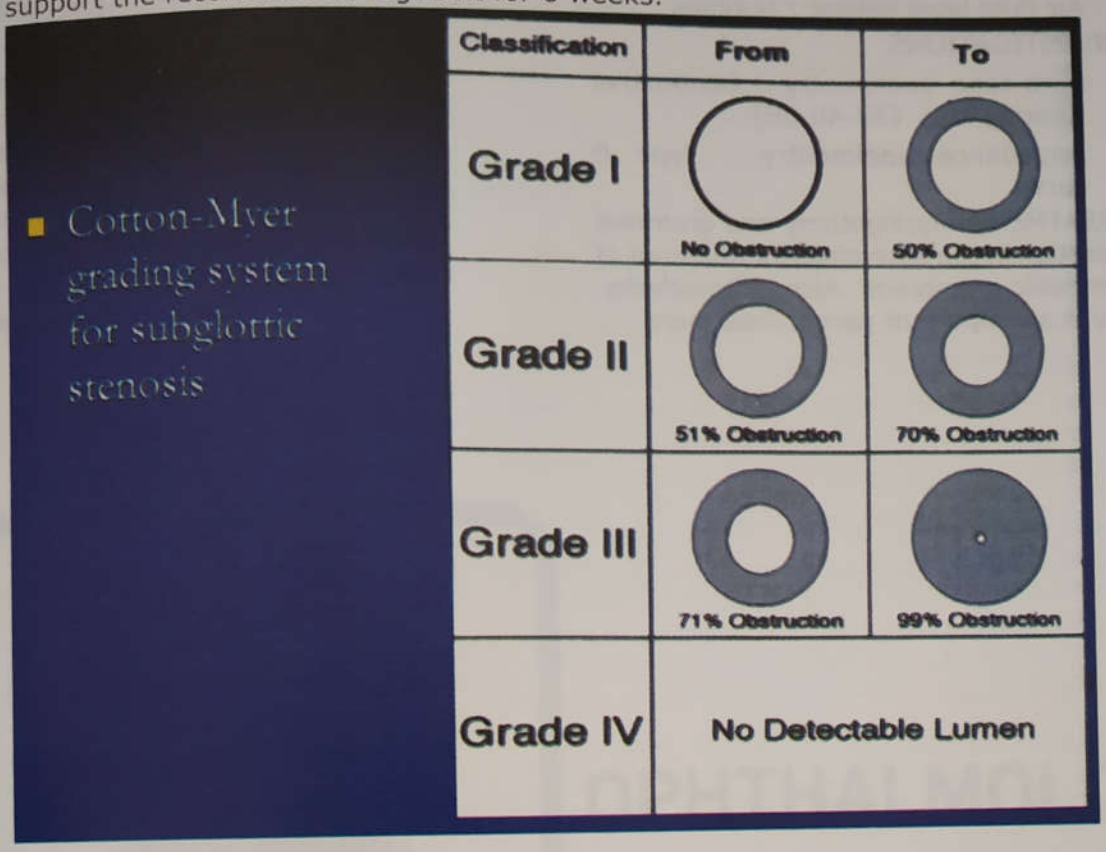
Pain radiates of ipsilateral ear.

There is aggravation of pain on swallowing.

It is caused by calcification of stylohyoid ligament / elongation of styloid process.

422. D. Congenital subglottic stenosis

Montgomery's silicon T tube is used for laryngotracheal reconstruction. This tube is used to support the reconstructed segment for 6 weeks.



423. A. Bilateral adductor palsy

Both the vocal cords are lying immobile in intermediate or cadaveric position. There is no adduction.

So the diagnosis is bilateral adductor palsy.

424. C. Mondini's dysplasia of cochlea

Brain stem implant is placed on lateral recess of 4th ventricle near cochlear nucleus for stimulation.

The indications are- NF-2 cases with bilateral acoustic neuromas, congenital absence of VIII nerve, cochlear aplasia(Michel's)

425. C. Microwick assisted transtympanic Gentamicin Injection

Primary treatment of meniere's disease is medical management. Refractory patients are offered further treatments. like transtympanic injection of gentamicin using microwicks or microcatheters. Meniete device is external device used for pulse pressure therapy to labyrinth. Donaldson's line is surgical landmark for localisation of endolymphatic sac to conduct endolymphatic sac decompression therapy

426. B. Reissner's membrane

Basilar membrane separates Scala Media and Scala Tympani

Reissner's membrane separates Scala Vestibuli and Scala media

Tectorial membrane covers Organ of corti

427. D. Middle ear Ventilation tube

OTITIS Media With Effusion (O.M.E.)

OTITIS Media With Effusion (O.M.E.)

= glue ear, som (Secretory otitis media)

Definition:

OME : Is accumulation of non purulent fluid in the middle ear.

- Incidence highest in School going children due to ET blockage due to adenoid hypertrophy

Feature

- Hearing loss
- Delayed speech development
- heaviness in the ear

Otoscopy :-Tympanic membrane :- dull

- Retraction / ↓ mobility of TM
- Air fluid level behind / bubbles

INVESTIGATIONS

- Pure tone audiometry : Conductive Hearing loss (20-40 dB)
- Impedance audiometry : Type B curve.

TREATMENT: Myringotomy and grommet insertion in the anteroinferior quadrant of tympanic membrane. Also, adenoidectomy is an important part of Treatment

428. D. It is not indicated in patients with chronic discharging ear with hearing loss

BAHA- bone anchored hearing aid will be given to hearing impaired individuals where conventional hearing aids can not be given like in bilateral Anotia, EAC atresia, discharging ear, EAC stenosis. Its a specialised device which is surgically fitted partly on to mastoid bone. it transmits sound directly to cochlea through the bone conduction using the principle of osseointegration